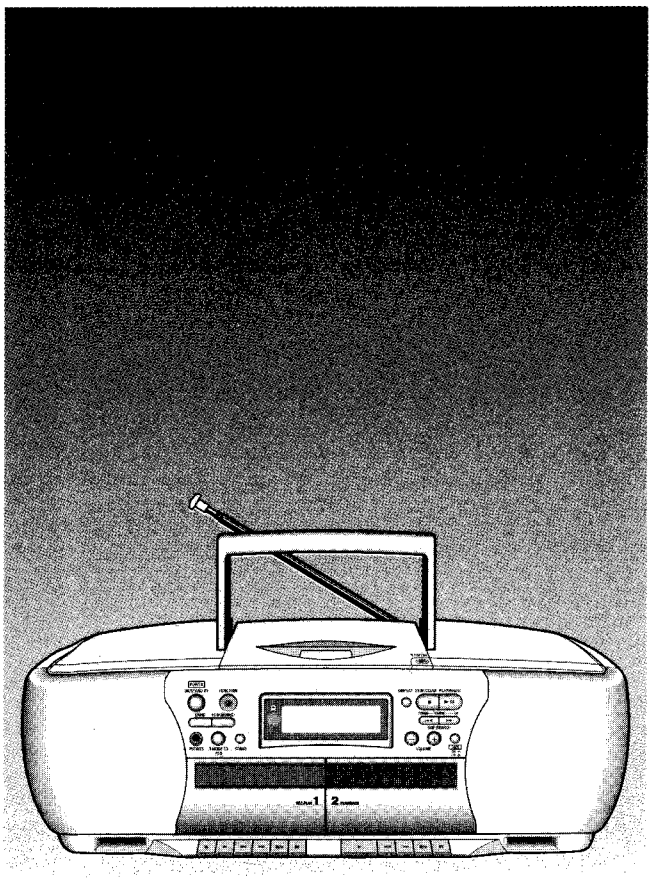
SAMSUNG

CD PLAYER STEREO RADIO CASSETTE RECORDER

RCD-1650/1655

SERVICE Manual

CD PLAYER STEREO RADIO CASSETTE RECORDER



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■ Design and specification are subject to change upon improvement without prior notice.

1. Safety precaution

1-1. Class 1 laser product

This laser disc player is classified as a CLASS 1 laser product.

1-2. Laser warning label

The label shown below may be affixed or not according to country.

(UL)

This Product Complies with DHHS Rules 21CFR, Sub chapter J.At date of Manufacture

(CSA)

CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE.

CERTIFIE EN VERTU DU CODE CANADIAN DE LELETRICITE SEULEMENT

(EU)

CLASS 1
LASER PRODUCT

Location: Enclosure back.

(SCAN)

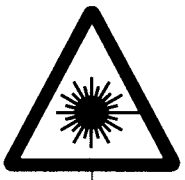
CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATEO AVOIDEXPOSURE TO BEAM

ADVARSEL: USYNLIG LASERSTRÅLING VED ABNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGA UDSAETTELSE FOR STRALING

VARO: AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTINA NAKYMATTÖMALLE LASERSATEILYLLE ALA KATSO SATEESEEN!

VARNING: OSYNLIG LASERSTRÅLNING NAR DENNA DEL AR OPPNAD OCH SPARREN AR URKOPPLAD BETRAKTA EJSTRÅLEN!

(EU)



UL : Manufactured for U.S.A. Market.
CSA : Manufactured for Canadian Market.
EU : Manufactured for European Market.
SCAN : Manufactured for Scandinavian Market.

Location : on the disc clamper or inner side of UNIT door or nearby UNIT chassis.

1-3. Laser beam warning

ADVERSEL –Usynlig saserstråling ved åbning, når Sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

VARNING –Osylig laserstralning när denna del är öppnad och spärr är urkopplad. Stralen är farlig.

VARITUS –Laite sisältää laserdiodin, joka lähettää näkymätönta silmille vaarallista lasersateilyä.

CAUTION –Invisible laser radiation when door is open and interlocks defeate. Avoid exposure to beam.

1-4. Laser diode specification (Optical pick-up)

- Material : GaAs+GaAlAs
- Wavelength : 760-800nm
- Emission duration : Continuous
- Laser Output : 0.2mW
  * This output is the value measured at distance 1.6mm from the objective lens surface on the optical pick-up block.
- Classification : CLASS 1

1-5. Warning for servicing

WARNING: When servicing, do not approach the LASER exit with the eye too closely. In case it is necessary to confirm LASER beam emission, be sure to observe from a distance of more than 30cm from the surface of the objective lens on the optical pick-up block.

VARNING: När underhållningsarbeten utförs, närma dig försiktigt och se inte på laserutstrålningen på för nära häll. If all det är nödvändigt att betrygga laserstrålens utströmning. Var säker att kontrollera detta från ett avståand av mer än 30cm (11.81 inch.) fråan den objektiva linsens yta på den optiska utsåndningspunkten.

ADVARSEL: När repareringsarbejdet udfoeres, naerm dig forsigtigt og se ikke på laserudstrålingen påa for naer håand. ^t ilfaeldet at det er noedvaendigt at bestemme laserstrålens udstråling. Vaer sikker på kontrollere dette fra en afstand af mere end 30cm (11.81 inch.) fra den objektive linses overflade på den optiske udsendningspunkt.

VAROITUS: Silmiä on varottava viemästä liian läbeile laser-poistokanavaa huoiion aikana. Jos on välttämätöntä varmistaa Laser-Säteen päästö, pysyttels sitä tarkasteltaessa vähintään 30cm etäiyydellä optisen lukon objecktiivilinssin pinnasta..

1-1-6. Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:

(1) Be sure that no built-in protective devices are defective or have been defeated during servicing. (1) Protective shields are provided to protect both the technician and the customer. Correctly replace all missing protective shields, including any remove for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including, but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/ capacitor networks. Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning.

(2) Be sure that there are no cabinet openings throught which adults or children might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, excessively wide cabinet ventilation slots, and an improperly fitted and/or incorrectly secured cabinet back cover.

(3) Leakage Current Hot Check-With the instrume-nt completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use a isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1270 (40.7). With the instrument's AC switch first in the ON positin and then in the OFF position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinets, screwheads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis.

Any current measured must not exceed 0.5 millamp. Reverse the instrument power cord plug in the outlet and repeat the test.

See Figure 1.

Any measurements not within the limits specified herein indicate a potential shock hazard that must be ellminated before returning the instrument to the customer.

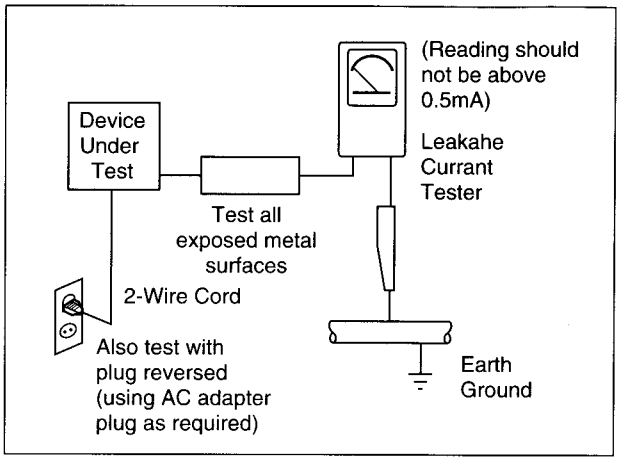

(Reading should not be above 0.5mA)
Leakahe Currant Tester
Device Under Test
Test all exposed metal surfaces
2-Wire Cord
Also test with plug reversed (using AC adapter plug as required)
Earth Ground

FIG. 1 AC Leakage Test

(4) Insulation Resistance Test Cold Check-(1) Unplug the power supply cord and connect a jumper wire between the two prongs of the plug. (2) Turn on the power switch of the instrument. (3) Measure the resistance with an ohmmeter between the jumpered AC plug and all exposed metallic cabinet parts on the instrument, such as screwheads, antenna, control shafts, handle brackets, etc. When an exposed metallic part has a return path to the chassis, the reading should be between 1 and 5.2 megohm. When there is no return path to the chassis, the reading must be infinite. If the reading is not within the limits specified, there is the possibility of a shock hazard, and the instrument must be repared and rechecked before it is returned to the customer.

See Figure 2.

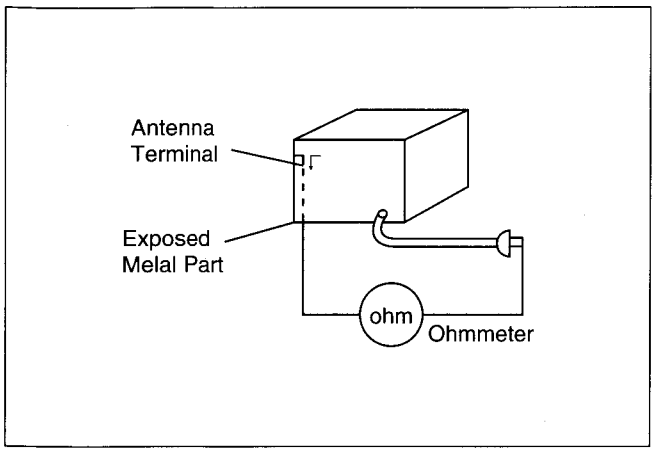


FIG. 2 Insulation Resistance Test

1-1-7. Read and comply with all caution and safety-related notes non or inside the cabinet, or on the chassis.

1-1-8. Design Afteration Warning-Do not alter or add to the mechanical or electrical design of this instrument. Design alterations and additions, including but not limited to, circuit modifications and the addition of items such as auxiliary audio output connections, might alter the safety characteristics of this instrument and create a hazard to the user. Any design alterations or additions will make you, the servicer, responsible for personal injury or property damage resulting therefrom.

1-1-9. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: (1) near sharp edges, (2) near thermally hot parts (be sure that leads and components do not touch thermally hot parts), (3) the AC supply, (4) high voltage, and (5) antenna wiring. Always inspect in all areas for pinched, out-of-place, or frayed wiring. Do not change spacing between a component and the printed-circuit board. Check the AC power cord for damage.

1-1-10. Components, parts, and/or wiring that appear to have overheated or that are otherwise damaged should be replaced with components, parts and/or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

1-1-11. Product Safety Notice-Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by shading, an (*) or a (⚠) on sc-hematisc and parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might created shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

2. Servicing notes

2-1. Before servicing the unit

Be sure to observe the safety notes attached on label, chassis, cabinet top, cabinet bottom and printed circuit board.

2-1-1. Caution on laser beammalfunction

Do not try to access objective lens, when DISC is not on the tray.

When pick-up mechanism replacement is required, be sure to turn power off.

2-1-2. When handling parts

Tube, tape or insulating parts are used for sepa-ration or insulation purposes. Especially parts which generate excessive heat are kept away from PCB or any other sensitive parts. Therefore, when replacing parts, be sure to replace them in their original position.

2-1-3. When fixing wires

Wires should be fixed in such a way with cable-tie so they won't move.

When finished servicing, be sure to leave unit in it's original configuration.

2-1-4. Use specified parts only

The safety specification built into the electronics of this unit require that you use specified parts only. Do not use any other replacements. Using other parts can result in electrical and fire hazard.

2-1-5. After servicing is complete

After servicing is complete, check if there are any missing parts or that wires are properly fixed and any place where over heating or shock is likely to occur, can be found.

2-1-6. Handling the optical pick-up

* The laser diode in the optical pick up may suffer electrostatic breakdown because of potential static electricity from clothing and your body.

The following method is recommended.

(1) Place a conductive sheet on the work bench (The black sheet used for wrapping repair parts.)

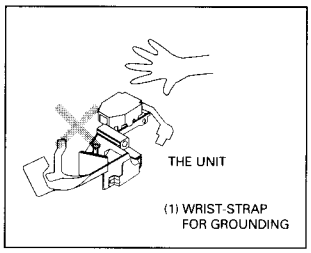
(2) Place the set on the conductive sheet so that the chassis is grounded to the sheet.

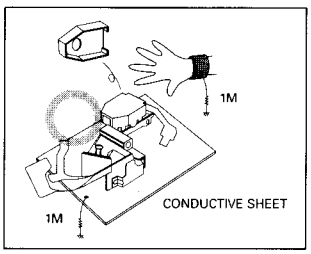
(3) Place your hands on the conductive sheet (This gives them the same ground as the sheet).

(4) Remove the optical pick up block.

(5) Perform work on top of the conductive sheet. Be careful not to let your clothes or any other static sources to touch the unit.

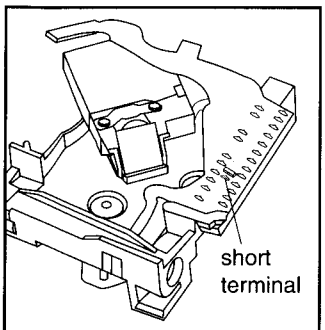
* Be sure to put on a wrist strap grounded to the sheet.
* Be sure to lay a conductive sheet made of copper etc. which is grounded to the table.



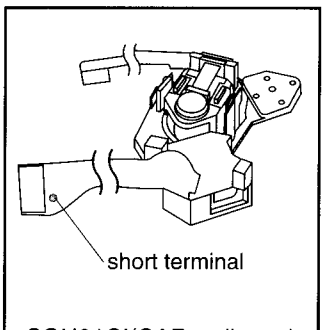


(6) Short the short terminal on the PCB, which is inside the Pick-Up ASS'Y, before replacing the Pick-Up.
(The short terminal is shorted when the Pick-Up Ass'y is being lifted or moved.)

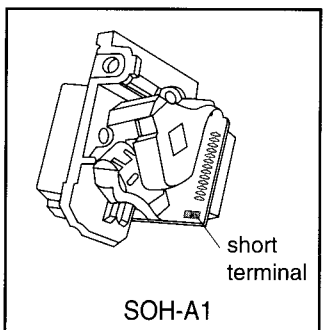
(7) After replacing the Pick-up, open the short terminal on the PCB.



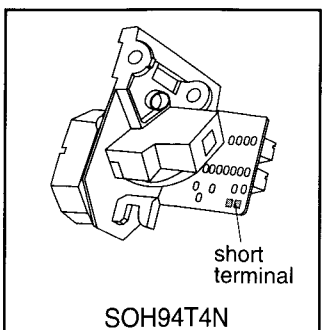
SOH91VI(LDP)



SOH91CI(CAR,walkman)



SOH-A1
(CMS-V10,CMS-V30)



SOH94T4N
(CMS-V10,CMS-V30)

2-2. Servicing Precautions

CAUTION: Before servicing Instruments covered by this service manual and its supplements, read and follow the Safety Precautions section of this manual.

Note: If unforseen circument create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.
Remember: Safety First.

2-2-1. General Servicing Precautions

(1) a. Always unplug the instrument's AC power cord from the AC power source before (1) removing or reinstalling any component, circuit board, module or any other instrument assembly, (2) disconnecting any instrument electrical plug or other electrical connection, (3) connecting a test substitute in parallel with an electrolytic capacitor in the instrument.

b. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.

c. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.

d. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the test instrument positive lead.
Always remove the test instrument ground lead last.

Note: Refer to the Safety Precautions section ground lead last.

(2) The service precautions are indicated or printed on the cabinet, chassis or components. When servicing, follow the printed or indicated service precautions and service materials.

(3) The components used in the unit have a specified flame resistance and dielectric strength. When replacing components, use components which have the same ratings. Components identified by shading, by (*) or by (⚠) in the circuit diagram are important for safety or for the characteristics of the unit. Always replace them with the exact replacement components.

(4) An insulation tube or tape is sometimes used and some components are raised above the printed wiling board for safety. The internal wiring is sometimes clamped to prevent contact with heating components. Install such elements as they were.

(5) After servicing, always check that the removed screws, corponents, and wiring have been installed correctly and that the portion around the serviced part has not been damaged and so on. Further, check the insulation between the blades of the attachment plug and accessible conductive parts.

2-2-2. Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power ON. Connect the insulation resistance meter (500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (see note) should be more than 1 Megohm.

Note: Accesible conductive parts include metal panels, input terminals, earphone jacks, etc.

2-3. ESD, Precautions

Electrostatically SensitiveDevices (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity.
Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

(1) Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic aharge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

(2) After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

(3) Use only a grounded-tip soldering iron to solder or unsolder ESD devices.

(4) Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESD devices.

(5) Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damge ESD devices.

(6) Do not remove a replacement ESD device from its protective package until immediately before your are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).

(7) Immediately before removing the protective materials from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

(8) Minimize bodily motions when handling unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

3. Chip replacement

3-1. Precaution for the Chip Replacement

(1) Do not touch the part body directly with the soldering iron. ICS, especially TSOP, are easily damaged by heat.
(2) Use care regarding soldering iron tip and avoid rapidly heating parts. Some parts can be damaged by sudden heating. Preheat the part at about 100°C for several minutes before installing it.
(3) Use soldering tip temperature of about 240°C or larger parts, use a slightly higher temperature (about 280°C).
(4) The thin (0.3mm) solder for miniature parts does not contain adequate flux. Supplementary flux is thus needed in most cases.

The NoteMaster 486S/25N series systems are manufactured using flux which can be cleaned by water in the factory. When your replace the part or troubleshooting, use proper flux and solder which can be cleaned by water. Soldering area will corrode, if proper flux and solder are not used in replace. And it may cause a fatal error to the system.

(5) Use care not to damage the circuit pattern, especially when removing.
(6) Because of the many pins, cleanliness of the pattern is extremely important after removing the IC.
(7) Use care to avoid solder bridges. Remove any that occurs.
(8) Position the part carefully. This will also affect the soldering operation. Be very precise in positioning the IC. Soldering opposite pins first holds the IC in place and makes soldering the other pins easier.
(9) Do not reuse removed parts.
(10) Check for solder joints, especially miniature parts with small lead.
(11) A defective trimming resistor cannot be adjusted externally. Replace with an ordinary variable resistor.
(12) It is important to inspect the work with a magnifier. Check after installing (cold solder joints, etc).

3-2. Tools for the Chip Replacement

The tools for the chip replacement are as follows:

(1) Thin tip type soldering iron
(2) Small flat-blade tip type soldering iron
(3) Special desoldering tip iron
(4) Airblower unit
(5) Flat Package Pick-up
(6) Flux can be cleaned by water
(7) 0.3mm thin solder can be cleaned by water
(8) Desoldering wire
(9) Tweezers

3-3. Chip Resistors and Chip Capacitors

3-3-1. Kind jof the Part

The kind of chip resistors and chip capacitors as follows

(1) Thick Film Chip Resistors
(2) Carbon Film Chip Resistors
(3) Metal Film Chip Resistors
(4) Chip Ceramic Capacitors
(5) Chip Trimming Resistors

3-3-2. Removing the Part

The kind of chip resistors and chip capacitors as follows

(1) Using two soldering irons:
① Use thin tip soldering irons.
② Use soldering tip temperature of about 280°C
③ Simultaneously heat both ends of the part.
④ While heating, grasp the part with the tips of the soldering irons and remove it.
⑤ Use desoldering wire to completely remove the old solder from the part location of the board.
⑥ A clean pattern for installing the new part is very important.

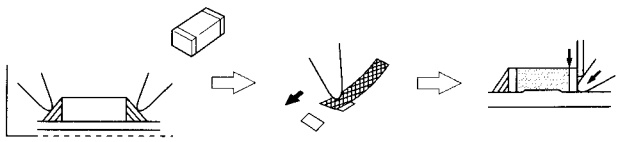


FIG. 4

3-3-3. Installing the Part

(1) Clean the area where the new part is to be mounted.
(2) Apply flux.
(3) Set part correctly into position, prevent it from shifting.
(4) Bring the soldering iron tip close to the part contact without actually touching it. Melt thin (0.3mm) solder between the tip and part so that it flows into the part contact.
(5) Check work quality with a magnifier.

3-4. Chip Tantalum Capacitors and Chip Filters

3-4-1. Kind of the Part

The kind of chip tantalum capacitors and chip filters are as follows:

(1) Chip Inductors
(2) Chip Tantalum Capacitors
(3) Chip Tantalum Electrolytic Capacitors
(4) Chip Aluminum Electrolytic Capacitors
(5) Chip Transformers
(6) Chip Filters

3-4-2. Removing the Part

(1) Using special desoldering iron:
① Select soldering tip according to part size.
② Bring the tip into contact with the soldered points.
③ When the solder melts, remove the part.
④Remove the old solder with desoldering wire.

(1) Using two soldering irons:
① Use small flat-blade tips.
② Heat both ends of the part simultaneously.
③ When the solder melts, grasp and remove the part with the soldering iron tips.
④ Remove the old solder with desoldering wire.

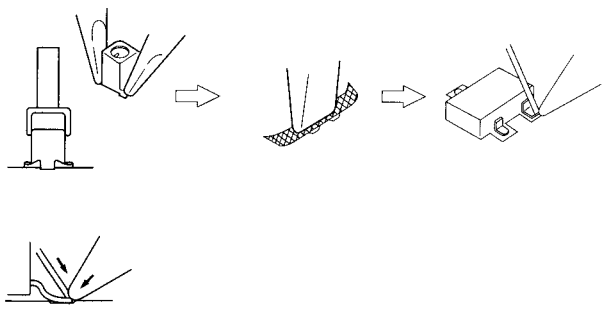


FIG. 5

3-4-3. Installing the Part

(1) Clean the area where the new part is to be mounted.
(2) Apply flux
(3) In part correctly into position, prevent it from shifting.
(4) Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that if flows into the part contact.
(5) Check work quality with a magnifier.

3-5. Chip VRs, Chip Trimmer Capacitors, Diodes and Tr.

3-5-1. Kind of the Part

The kind of the part is as follows:

(1) Chip VRs
(2) Chip Trimmer Capacitors
(3) Diode
(4) Transistors

3-5-2. Removing the Part

(1) Using two soldering irons:
① Use small flat-blade tips.
② Heat the leads of the part simultaneously.
③ When the solder melts, grasp and remove the part with the soldering iron tips.
④ Remove the old solder with desoldering wire.

3-5-3. Installing the Part

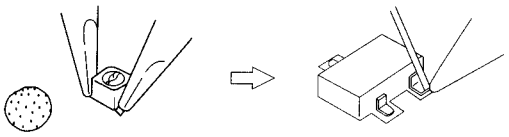


FIG. 6

(1) Clean the area where the new part is to be mounted.
(2) Apply flux
(3) Set part correctly into position, prevent it from shifting.
(4) Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.

3-6. Chip ICs

3-6-1. The kind of the Chip ICs

The kind of the chip ICs are as follows:

(1) SOP (Small Outline Package) IC
(2) SSOP (Shrink Small Outline Package) IC
(3) VSOP (Very Small Outline Package) IC
(4) QFP (Quad Flat Package) IC
(5) VQFP (Very Quad Flat Package) IC
(6) PLCC (Plastic Leaded Chip Carrier) IC
(7) TSOP (Thin Small Outline Package) IC

3-6-2. Removing the Part

(1) Using special desoldering iron:
① Select the tip according to the size and shape of the IC.
② Thin" the tip with a small amount of the IC leads.
③ Set the tip squarely over the IC leads.
④ When the solder melts, carefully twist the iron.
⑤ Raise and remove the IC.

(2) Using shaped airblower unit:
① Select the correct nozzle.
② Select the temperature and airblow (suggested: temperature: 7, airblow: 4)
③ Engage the IC removing tool.
④ Use the airblow to preheat the IC for about 5 seconds, then heat with the nozzle until the IC remover lifts the part from the board.

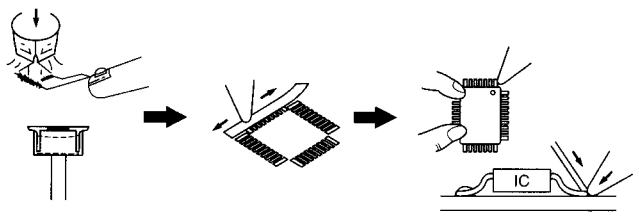


FIG. 7

3-6-3. Installing the Part

(1) Use desoldering wire to remove the previous older.
(2) Clean the location.
(3) Apply flux.
(4) Position the IC and solder two pins at opposite sides.
(5) Use a sharp tipped soldering iron and carefully solder each pin. (After graining experience, a thicke tip can be used for better work efficiency.)
(6) Remove any solder bridges with desoldering wire.
(7) Inspect the work with a magnifier.

2. Specification

2-1. General section

(1) Power source ..... AC: See label rating
DC: 12V (D, RM1, HP2 x 8)
4.5V (AA size x 3) – For memory Back-up
3V (AA size x 2) – For remote controller
(2) Power consumption 22W
(3) Maximum output ..... 4W/CH (RMS) at DC
(4) Frequency response ..... 20Hz~20KHz
(5) Dimension ..... 546(W) x 199(H) x 226(D) mm
(6) Weight ..... 5.5Kg (Omit Battery)
(7) Speakers ..... 100mm, WOOFER x 2 (4Ω)
(8) Headphone Jack ..... 3.5mm (Stereo)

2-2. Tape section

(1) Frequency response ..... 125Hz~8KHz
(2) S/N ratio 40dB
(3) Separation 28dB
(4) Erasing effect 50dB
(5) Total Harnonic distortion 4%
(6) Tape speed ..... 4.75cm/sec (Normal)
9.5cm /sec (High)

2-3. Radio section

2-3-1. FM part

(1) Frequency Range ..... 87.5~108MHz
(2) S/N Ratio 40dB
(3) Usable Sensitivity 26dB
(4) Total Harmonic Distortion 2%
(5) I.F. 10.7MHz

2-3-2. AM part

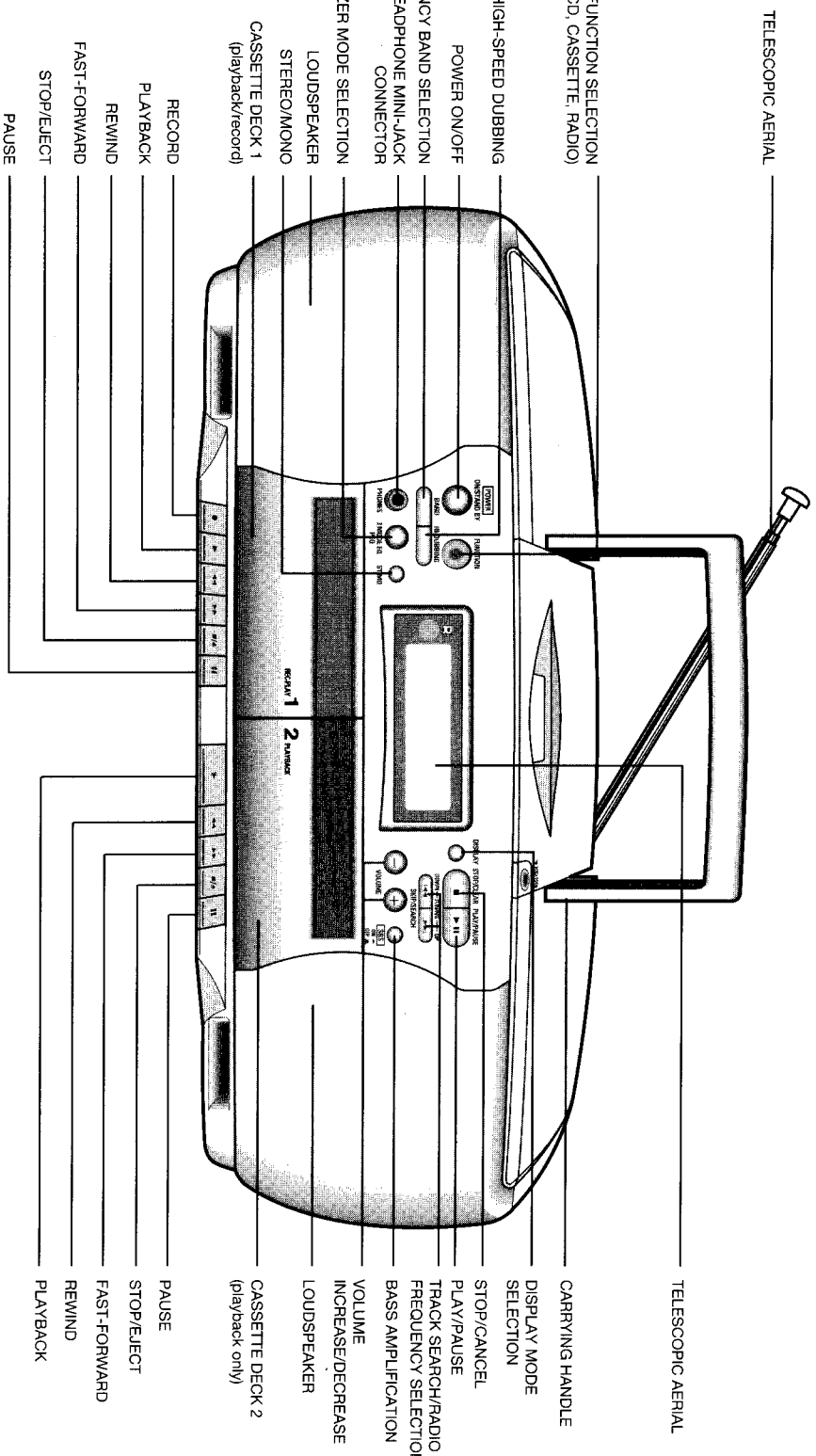
(1) Frequency range ..... 522~1611 KHz (MW)
146~290KHz (LW)
(2) S/N ratio 30dB
(3) Usable sensitivity 60dB
(4) Total Harmonic distortion 5%
(5) I.F. 450KHz

2-4. CD section

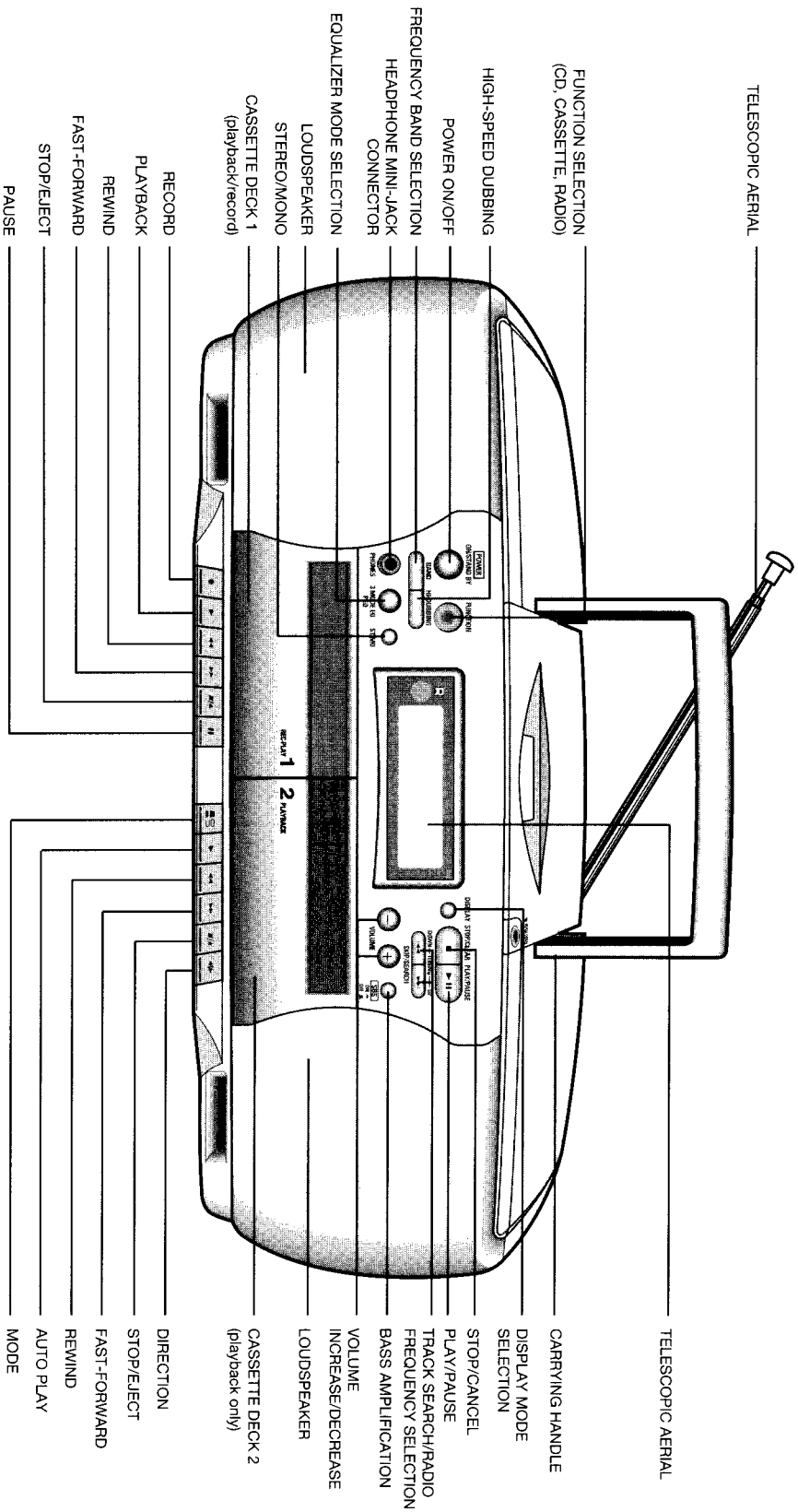
2-4-1. Frequency response ..... 20Hz~20KHz (± 3dB)
2-4-2. Channel Separation ..... 70dB (30 kHz LPF)
2-4-3. Total harmonic distortion ..... 1 kHz, 0.2% (30 kHz LPF)
2-4-4. S/N ratio ..... 80dB (with 30KHz LPF and 400 Hz HPF)
2-4-5. D/A conversion ..... 16 bit

3. Location of Controls

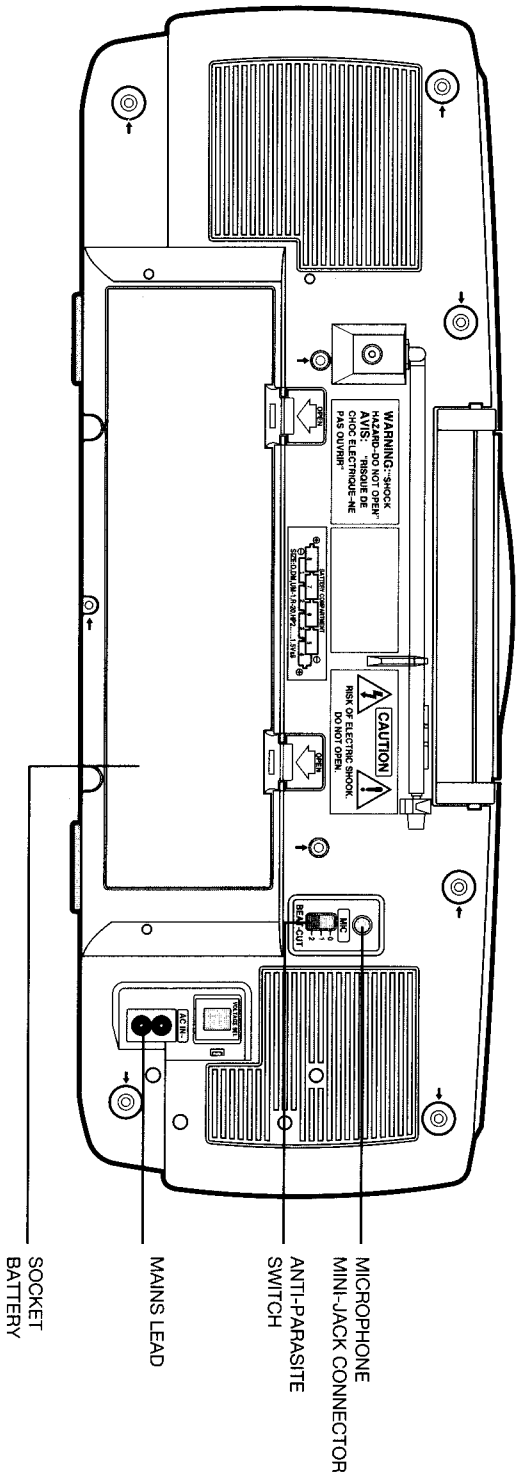
3-1. Front view



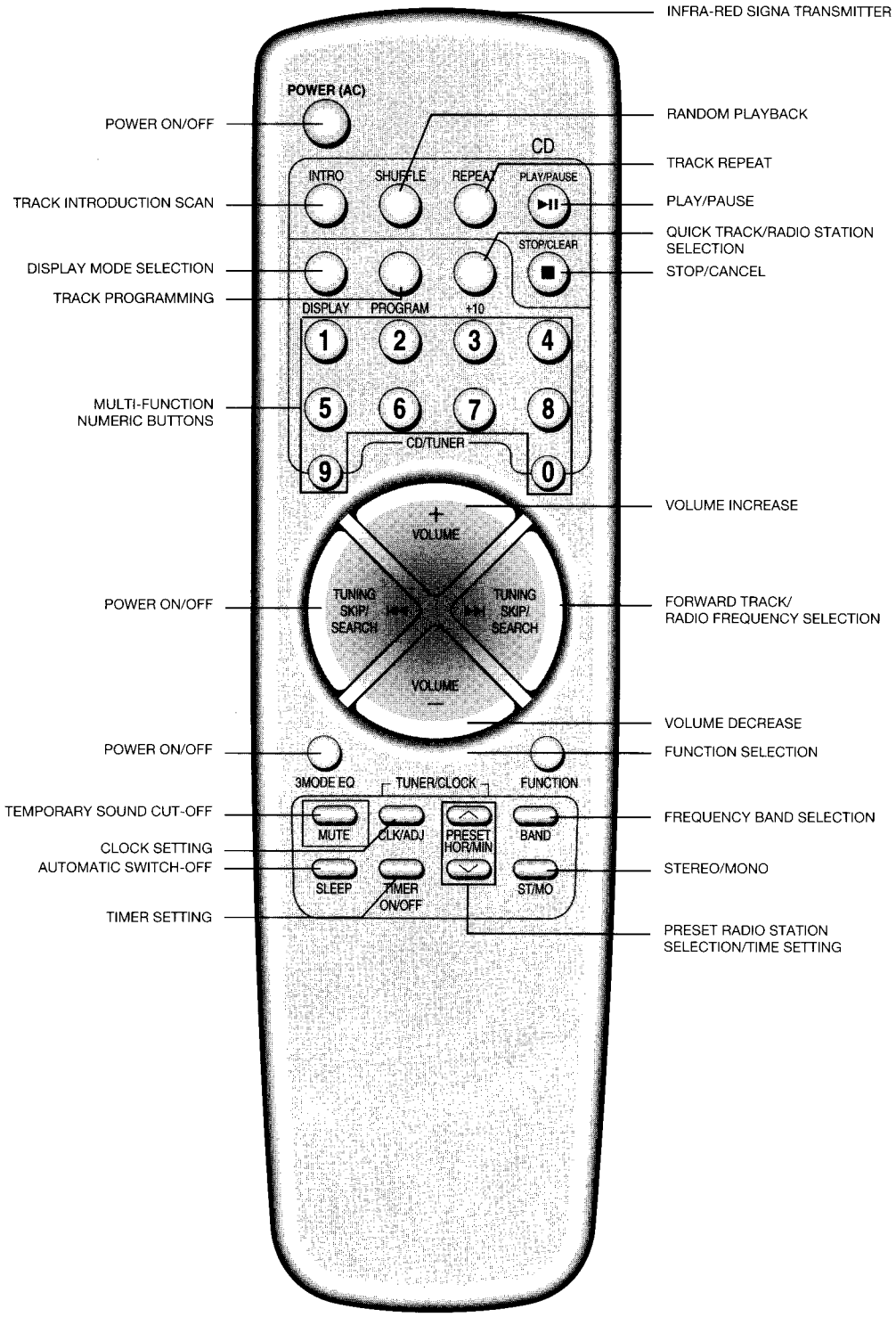
3-1-1. Front view (Only RCD-1655)



3-2. Rear view


SOCKET BATTERY
MAINS LEAD
ANTI-PARASITE SWITCH
MICROPHONE MINI-JACK CONNECTOR

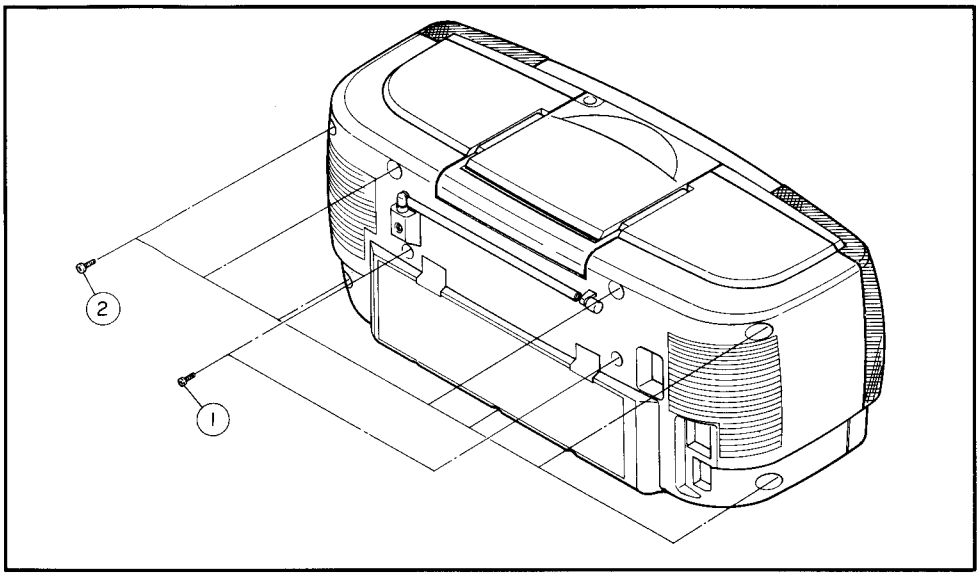
3-3. Remote Control



4. Disassembly instrution

4-1. How to disassemble rear-cabinet (FIG. 1)

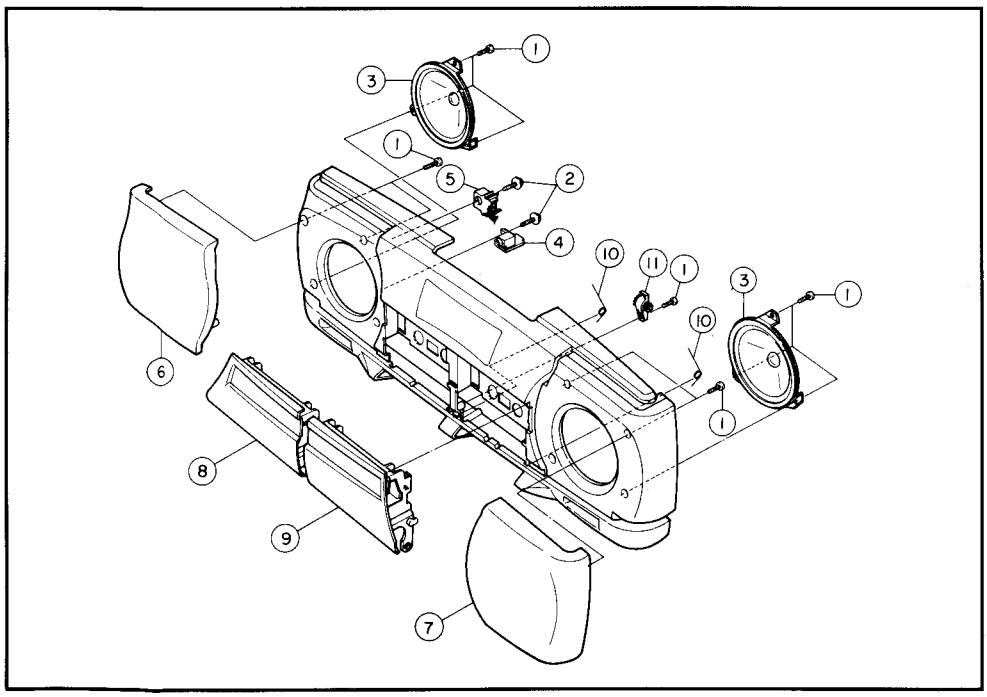
4-1-1. Remove the 2 screws ①.
4-1-2. Remove the 7 screws ②.
4-1-3. Remove the Front Ass'y.



(FIG.1)

4-2. How to disassemble front-cabinet (FIG. 2)

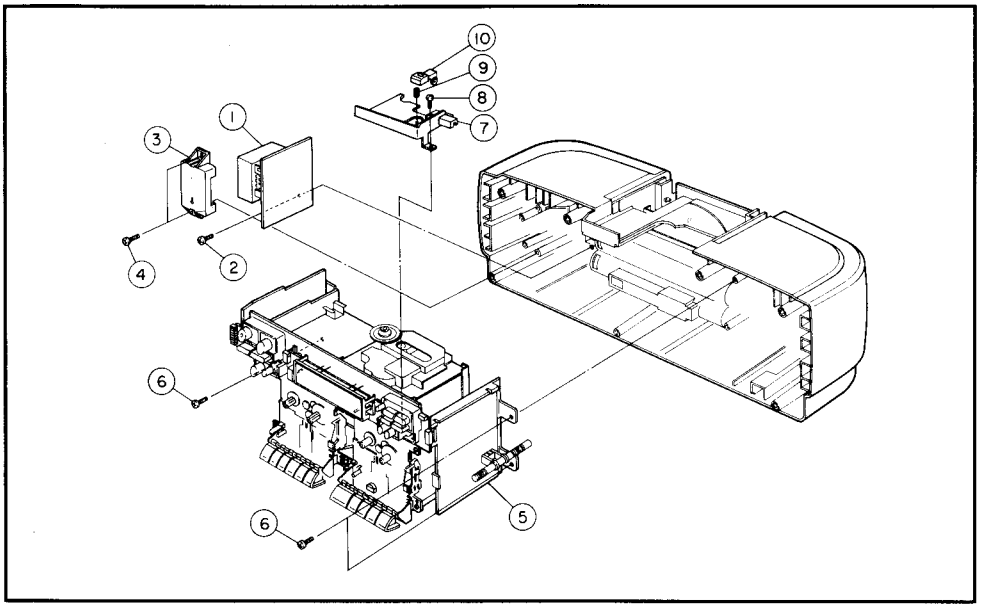
4-2-1. Remove the 9 screws ① and 2 screws ②.
4-2-2. Separate general speaker of ③ , phone jack of ④ and speaker connector ⑤.
4-2-3. Separate grille speaker of ⑦.
4-2-4. Separate damper gear of ⑪.
4-2-5. Separtate door cass L of ⑧, R of ⑨.
4-2-6. Remove door spring of ⑩.



(FIG.2)

4-3. How to disassemble (FIG. 3)

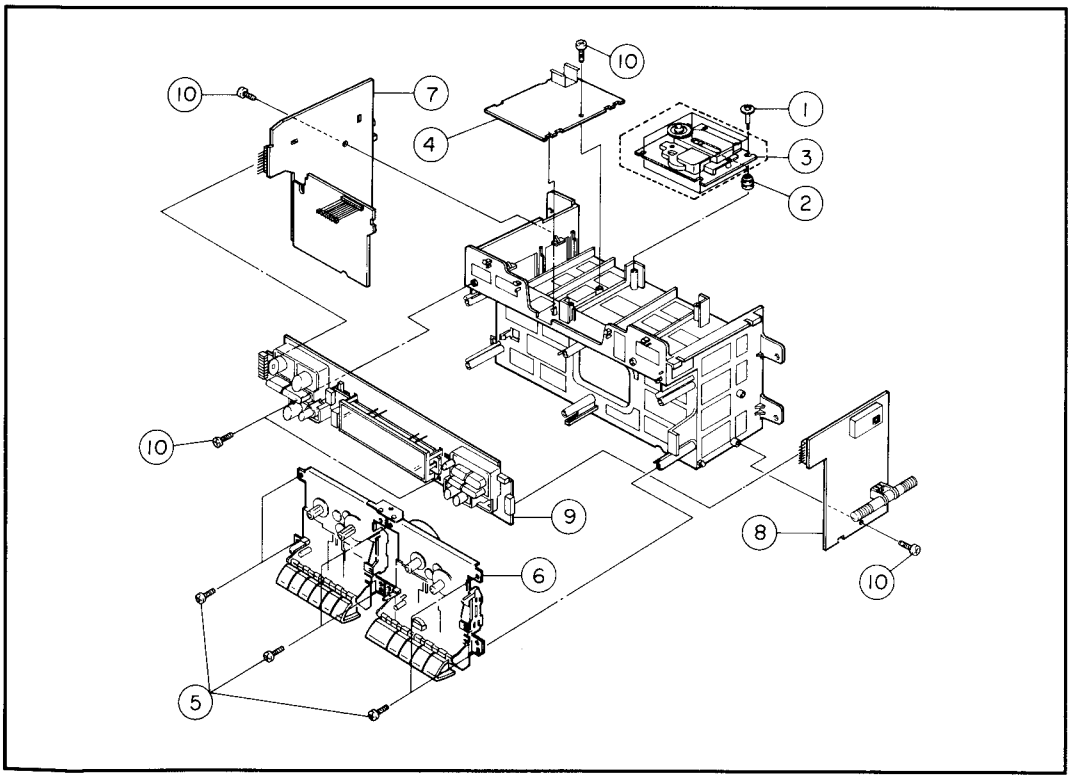
4-3-1. Remove the 7 screws ⑥, ⑧, ④, ②.
4-3-2. Separate Main chassis Ass'y of ⑤.
4-3-3. Separate Holder P/T of ③.
4-3-4. Separate P/T PCB of ①.



(FIG.3)

4-4. How to disassemble (FIG. 4)

4-4-1. Remove the 4 screws ① and 4 rubbers ②.
4-4-2. Separate CD DECK of ③ and CD PCB of ④ .
4-4-3. Remove the 10 screws ⑤, ⑩.
4-4-4. Separate cassette deck of ⑥.
4-4-5. Separate Main PCB of ⑦ and Tuner PCB ⑧.
4-4-6. Separate Front PCB of ⑨.



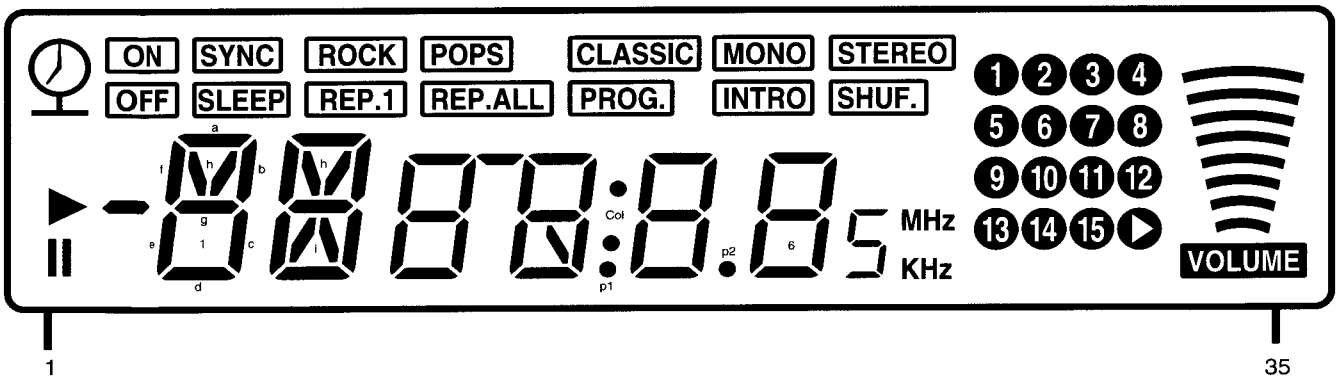
(FIG. 4)

5. Basic circuit operation

5-1. Description of FLT segments

If one or all of the FLT segments (see segment diagram below) don't work, check if UIC1 and FLT pins are properly connected refering to the charts below.

FLT PIN NO. / UIC1\ PIN NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
COM1	COM1	/	/	REP ALL	◷	ON	1F	1H	1A	2F	2H	2A	3F	⬭	3A	4F	COL	4A
COM2	/	COM2	/	POPS	▷	OFF	1E	1G	1B	2E	2G	2B	3E	3G	3B	4E	4G	4B
COM3	/	/	COM3	ROCK	▯▯	⬭	SYNC	1D	1C	2I	2D	2C	SLEEP	3D	3C	4H	4D	4C
FLT PIN NO. / UIC1\ PIN NAME	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
COM1	5F	REP 1	5A	6F	PROG	6A	INTRO	MONO	⑤	⑥	⑦	⑧	S1	S6	③	①	SHUF	
COM2	5E	5G	5B	6E	6G	6B	5	MHz	⑨	⑩	⑪	⑫	S3	S4	④	②	STEREO	
COM3	P1	5D	5C	P2	6D	6C	S2	KHz	⑬	⑭	⑮	▷	S5	VOLUME	S7	S8	CLASSIC	



4-2. μPD 75316: UIC1

NO	PIN NAME	PORT NAME	FUNCTION	I/O	ACTIVE
1	S12	S12	LCD SEGMENT CONTROL SIGNAL	O	
2	S13	S13	LCD SEGMENT CONTROL SIGNAL	O	
3	S14	S14	LCD SEGMENT CONTROL SIGNAL	O	
4	S15	S15	LCD SEGMENT CONTROL SIGNAL	O	
5	S16	S16	LCD SEGMENT CONTROL SIGNAL	O	
6	S17	S17	LCD SEGMENT CONTROL SIGNAL	O	
7	S18	S18	LCD SEGMENT CONTROL SIGNAL	O	
8	S19	S19	LCD SEGMENT CONTROL SIGNAL	O	
9	S20	S20	LCD SEGMENT CONTROL SIGNAL	O	
10	S21	S21	LCD SEGMENT CONTROL SIGNAL	O	
11	S22	S22	LCD SEGMENT CONTROL SIGNAL	O	
12	S23	S23	LCD SEGMENT CONTROL SIGNAL	O	
13	S24/BP0	S24	LCD SEGMENT CONTROL SIGNAL	O	
14	S25/BP1	S25	LCD SEGMENT CONTROL SIGNAL	O	
15	S26/BP2	S26	LCD SEGMENT CONTROL SIGNAL	O	
16	S27/BP3	S27	LCD SEGMENT CONTROL SIGNAL	O	
17	S28/BP4	S28	LCD SEGMENT CONTROL SIGNAL	O	
18	S29/BP5	S29	LCD SEGMENT CONTROL SIGNAL	O	
19	S30/BP6	S30	LCD SEGMENT CONTROL SIGNAL	O	
20	S31/BP7	S31	LCD SEGMENT CONTROL SIGNAL	O	
21	COMO	COMO	LCD SEGMENT CONTROL SIGNAL	O	
22	COM1	COM1	LCD SEGMENT CONTROL SIGNAL	O	
23	COM2	COM2	LCD SEGMENT CONTROL SIGNAL	O	
24	COM3	COM3	LCD SEGMENT CONTROL SIGNAL	O	
25	BIAS	BIAS	LCD SEGMENT CONTROL SIGNAL	O	
26	VLC0	VLC0	LCD SEGMENT CONTROL SIGNAL	O	
27	VLC1	VLC1	LCD SEGMENT CONTROL SIGNAL	O	
28	VLC2	VLC2	LCD SEGMENT CONTROL SIGNAL	O	
29	P40	A-MUTE	AUDIO MUTE	O	H
30	P41	H-SPEED	DECK HIGH SPEED	O	H
31	P42	IC-REP2 (P)	IC-REPEAT PLAY/REC	O	H
32	P43	TAPE	TAPE FUNCTION	O	H
33	Vss	Vss	GROUND	I	
34	P50	KIN2	KEY/TR/DIODE INPUT	I	H

NO	PIN NAME	PORT NAME	FUNCTION	I/O	ACTIVE
35	P51	KIN3	KEY/TR/DIODE INPUT	I	H
36	P52	KIN1	KEY/TR/DIODE INPUT	I	H
37	P53	KIN0	KEY/TR/DIODE INPUT	I	H
38	P00/INT4	/INH	BACK-UP	I	H/L
39	P01/SCK	SQCK/MCK	CD LSI SUBQ/COMMAND CLK	O	
40	P02/S0/SB0	MDATA	CD LSI COMMAND DATA	O	
41	P03/SI/SBI	SQDT	CD LSI SUBQ DATA	I	
42	P10/INT0	REMOCON	REMOCON INPUT	I	
43	P11/INT1	SCOR	CD SCOR	I	L
44	P12/INT2	FOK/SIG	CD FOK/DTS SIG	I	H/L
45	P13/T10	SENSE/STOUT	CD SENSE/DTS STOUT	I	L
46	P20/PT00	P-SENSE	POWER OUTPUT	O	H
47	P21	VCLK/DCLK	VOLUME (TC9154) COMMAND/DTS (LM7000) CLK	O	
48	P22/PCL	VDATA/DDATA	VOLUME (TC9154) COMMAND/DTS (LM7000) DATA	O	
49	P23/BUZ	KOUT5	DIODE MATRIX OUTPUT	O	H
50	P30/LCDCL	KOUT4	TR SWITCHING OUTPUT	O	H
51	P31/SYNC	MLT/STRQ	CD COMMAND LATCH/DTS IFREQ OUTPUT	O	L/H
52	P32	MUTE/MONO/IC-R1	CD MUTE/DTS MONO/TAPE IC-REPEAT T	O	H/H/H
53	P33	XRST/CE	CD LSI RESET/DTS (LM7000) CHIP ENABLE	O	H/H
54	Vdd	Vdd	Vdd	I	
55	XT1	XT1	X-tal		
56	XT2	XT2	X-tal		
57	NC	NC	(uPD75P308/75P316/75P316A connect Vdd)		
58	X1	X1	X-tal		
59	X2	X2	X-tal		
60	P60/KR0	VST	VOLUME (TC9154) STROBE OUTPUT	O	H
61	P61/KR1	TUNER	TUNER FUNCTION OUTPUT	O	H
62	P62/KR2	EQO	TUNER FUNCTION OUTPUT (P) O (R) 1 (C) O	O	
63	P63/KR3	EQ1	TUNER FUNCTION OUTPUT 0 1 1	O	
64	P70/KR4	KOUT2	KEY OUT SIGNAL	O	H
65	P71/KR5	KOUT3	KEY OUT SIGNAL	O	H
66	P72/KR6	KOUT0	KEY OUT SIGNAL		
67	P73/KR7	KOUT1	KEY OUT SIGNAL		
68	/RESET	/RESET	Reset	I	L

NO	PIN NAME	PORT NAME	FUNCTION	I/O	ACTIVE
69	S0	S0	LCD SEGMENT CONTROL SIGNAL	O	
70	S1	S1	LCD SEGMENT CONTROL SIGNAL	O	
71	S2	S2	LCD SEGMENT CONTROL SIGNAL	O	
72	S3	S3	LCD SEGMENT CONTROL SIGNAL	O	
73	S4	S4	LCD SEGMENT CONTROL SIGNAL	O	
74	S5	S5	LCD SEGMENT CONTROL SIGNAL	O	
75	S6	S6	LCD SEGMENT CONTROL SIGNAL	O	
76	S7	S7	LCD SEGMENT CONTROL SIGNAL	O	
77	S8	S8	LCD SEGMENT CONTROL SIGNAL	O	
78	S9	S9	LCD SEGMENT CONTROL SIGNAL	O	
79	S10	S10	LCD SEGMENT CONTROL SIGNAL	O	
80	S11	S11	LCD SEGMENT CONTROL SIGNAL	O	

[OPTION]

KIN 1	KIN3	KIN2	AREA
0	0	0	EU1
0	0	1	EU2
0	1	0	KOR (IC-R USE)
0	1	0	USA
1	0	0	LAT (MW=9K)
1	0	1	AUS
1	1	0	LAT
1	1	1	KOR (IC-R NOT USE)

5-2. CD section

● DRIVE (KA9258D) (NIC 9258)

Pin No.	Symbol	I/O	Description
1	DO 1.1	O	DRIVE Output
2	DO 1.2	O	DRIVE Output
3	DI 1.1	I	DIRVE Input
4	DI 1.2	I	DIRVE Input
5	REG		Regulator
6	REO	O	Regulator output
7	MUTE		MUTE
8	GND 1		Ground
9	DI 2.1	I	DRIVE Input
10	DI 2.2	I	DRIVE Input
11	DO 2.1	O	DRIVE Output
12	DO 2.2	O	DRIVE Output
13	GND 2		Ground
14	OP OUT	O	OP AMP Output
15	OP IN	I	OP AMP Input (-)
16	OP IN	I	OP AMP Input (+)
17	DO 3.1	O	DRIVE Ouput
18	DO 3.2	O	DRIVE Ouput
19	DI 3.1	I	DRIVE Input
20	DI 3.2	I	DRIVE Input
21	VCC 1		Supply voltage
22	VCC 2		Supply voltage
23	VREF		2.5V BIAS Voltage
24	DI 4.1	I	DRIVE Input
25	DI 4.2	I	DRIVE Input
26	DO 4.1	O	DRIVE Output
27	DO 4.2	O	DRIVE Output
28	GND		Ground

● AUDIO FILTER (KA9270) (NIC 9270)

Pin No.	Symbol	I/O	Description
1	GND	-	Ground
2	L OUT 1	O	Output pin of LPF 1
3	L IN 1	I	Input pin of LPF 1
4	MUTE	I	Mute control input pin
5	DE-EM	I	De-emphasis control pin
6	DE-EM CTL 1	I	De-emphasis control 1
7	DE-EM IN 1	O	De-emphasis output pin 1
8	DE-EM IN 1	I	De-emphasis input pin 1

Pin No.	Symbol	I/O	Description
9	B-OUT 1	O	Output pin of buffer 1
10	B-IN 1	I	Input pin of buffer 1
11	B-IN 2	I	Input pin of buffer 2
12	B-OUT 2	O	Output pin of buffer 2
13	DE-EM IN 2	I	De-emphasis input pin 2
14	DE-EM OUT 2	O	De-emphasis output pin 2
15	DE-EM CTL 2	I	De-emphasis control 2
16	RIPPLE	-	Input pin of ripple eliminate
17	VREF	-	Output pin of VREF (1/2 VCC)
18	L IN 2	I	Input pin of LPF 2
19	L OUT 2	O	Output pin of LPF 2
20	VCC	-	Input of VCC

● ASSP (KA9220) (NIC 9220)

Pin No.	Symbol	I/O	Description
1	AVEE (R)		Analog negative power supply input pin for RF part
2	CPH	I	Capacitor connection pin of mirror hold.
3	CBH	I	Capacitor connection pin of defect bottom-hold
4	TESTD	O	Defect test pin
5	TESTM	O	Mirror test pin
6	Test 1		Input pin of test
7	PFSET		Peak frequency setting pin for focus, tracking compensation and fc (cut off frequency) of CLV LPF.
8	SSTOP	I	Check the position pin of pick-up whether inside or not.
9	DIRC	I	Direct 1 Track Jump Control Pin
10	AVCC (S)		Analog positive power supply input pin for SERVO part.
11	WDCH		Auto-sequencer clock-input pin (Normal speed = 88.2KHz, Double speed = 176.4KHz)
12	SMPD	I	Connection pin of DSP SMPD
13	SMON	I	Connection pin of DSP SMON, spindle servo ON at "H"
14	N/C		No connection pin
15	TGSW	I	Providing time constant to change the high frequency tracking gain
16	RTG	I	Capacitor connection pin to switch the tracking gain of high frequency
17	LFR	I	Capacitor connection pin to perform rising low bandwidth of focus servo loop
18	FSW		High frequency gain of focus servo loop can be changed by FS3 switch ON or OFF

Pin No.	Symbol	I/O	Description
20	FSCH	O	Time constant external pin to generate focus search waveform
21	VREGI	I	External regulator voltage input pin for VCO
22	ISET		Determing the peak value of focus search, track jump and SLED kick
23	VREG	O	3.5V Regulator output pin
24	FVC	I	Pin connected external resistor to adjust free running frequency of VCO
25	SMEF	I	Providing an external LPF time constant of CLV SERVO Loop
26	BPF	I	Providing time constant for Loop filter of VCO
27	MCK	I	Clock input pin from micom
28	MLT	I	Latch input pin from micom
29	MDAT	I	Data input pin from micom
30	RESET	I	Reset input pin from micom, reset at "L"
31	LOCK		Pin for operation of the sled runaway prevention function at "L"
32	TRCNT	O	Track count output pin
33	ISTAT	O	Internal status output pin
34	AVEE (S)		Analog negative power supply input pin for SERVO part
35	APDI	I	Input pin of DSP phase comparison output (PHAS)
36	F8M	O	Output pin of analog VCO Normal speed = 8.64 MHz, Double speed = 17.28MHz
37	AASC	I	Auto-Asymmetry control input pin
38	EFMO	O	EFM comparator output pin
39	SLEN	I	Non-inverting input pin of SLED SERVO amplifier
40	SLEO	O	Output pin of SLED SERVO amplifier
41	SLEI	I	Inverting input pin of SLED SERVO amplifer
42	TEST2		Test input pin to change speed mode Normal speed = "H", Double speed = "L"
43	SPDI	I	Inverting input pin of spindle servo amplifier
44	SPDLO	O	Spindle servo amplifier output pin
45	FCE	I	Invering input pin of focus servo complifier.
46	FSE0	O	Output pin of focus sevoe amplifier
47	TKEI	I	Non-inverting input pin of tracking servo amplifier
48	TKE0	O	Output pin of tracking servo amplifier
49	N/C		No connection
50	ATS	I	Anti-shock input pin
51	TZC	I	Tracking Zero Crossing input

Pin No.	Symbol	I/O	Description
52	TE2	I	Tracking Error Servo input pin
53	TE1	O	Output pin of tracking Error Amplifer
54	TDFCT	I	Capacitor Connection pin for Defect Compensation of tracking servo
55	DVCC		Digital positive power supply input pin for servo part
56	FE2	I	Focus error servo input pin
57	FE1	O	Output pin of focus error Amplifier
58	FDFCT	I	Capacitor connection pin for defect compensation of focus servo
59	FOK	O	Output pin of Focus ok comparator.
60	LDON	I	Laser diode ON/OFF control pin
61	EI	I	Feedback input pin of E I-V amplifier
62	EO	O	Output pin of E I-V amplifier
63	FBIAS	I	Bias pin of non-inverting input of focus error amplifier
64	DVEE		Digital negative power supply input pin for servo part
65	RFI	I	Output Signal of RF summing amplifier is inputed through capacitor
66	RFO	O	Output pin of RF summing amplifier
67	RF-	I	Inverting input pin of RF summing amplifier
68	RV		Output pin of (AVCC + AVEE)/2 Voltage
69	CV		Bias input pin of Center Voltage Buffer
70	LD	O	Output pin of APC amplifier
71	PD	I	Input pin of APC amplifier
72	AVCC		Analog positive power supply input pin for RF part
73	N/C		No connection
74	PD2	I	Inverting input pin of RF I-V AMP2
75	PD1	I	Inverting input pin of RF I-V AMP1
76	F	I	Inverting input pin of F I-V AMP
77	E	I	Inverting input pin of E I-V AMP
78	P/N		Selecting P-sub/N-sub of Laser diode
79	DCC2		Defect bottom-hold output is inputed through capacitor
80	DCC1		Output pin of defect bottom-hold

● DSP (KS9282) (NIC 9282)

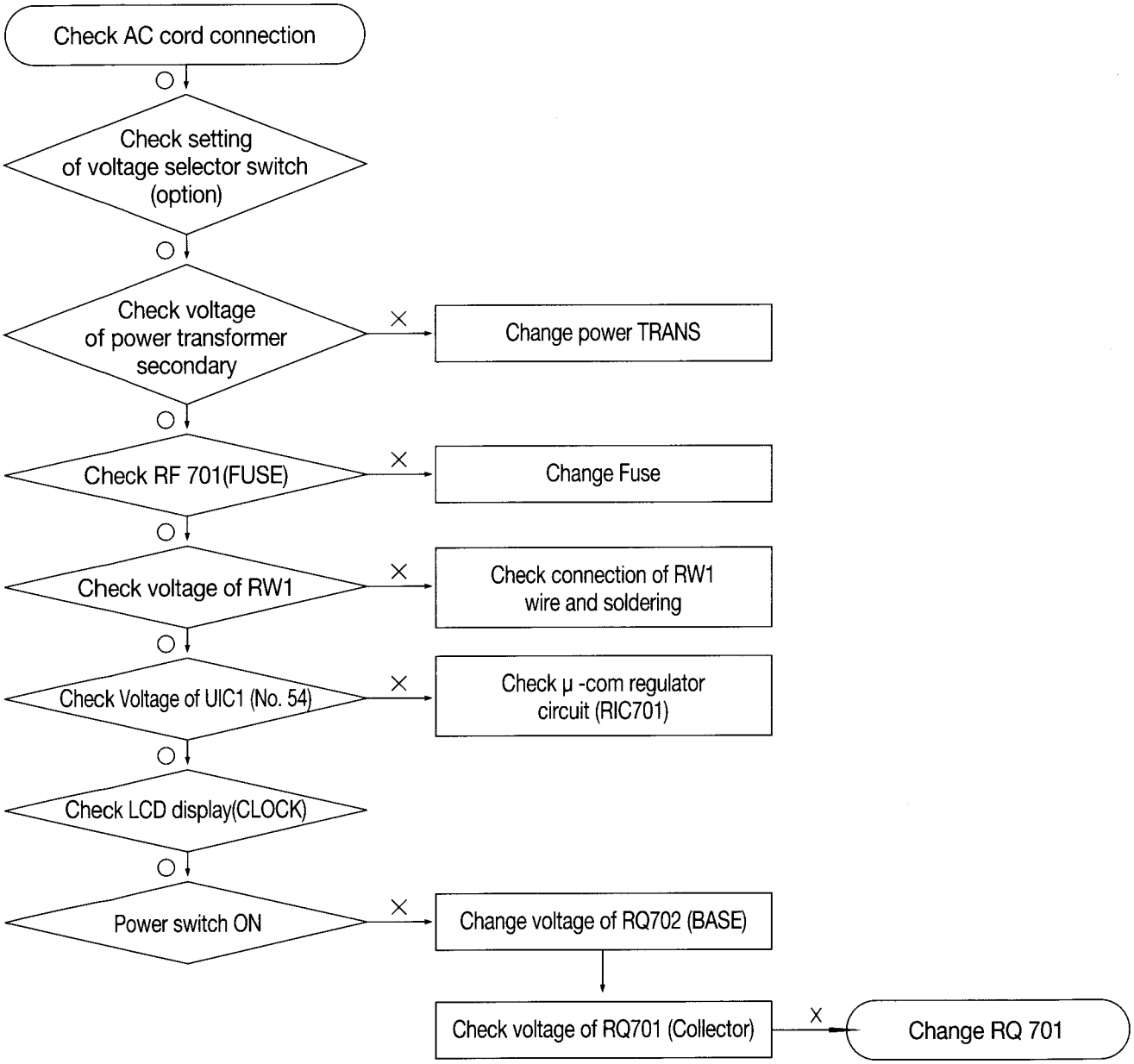
Pin No.	Symbol	I/O	Description
1	AVDD1		Aanlog Vcc 1
2	DPDO	O	Charge pump output for master PLL
3	DPFIN	I	Filter input for master PLL
4	DPFOUT	O	Filter output for master PLL
5	CNTVOL	I	VCO control voltage for master PLL
6	AVSS1		Analog Ground 1
7	DATX	O	Digital audio output
8	XIN	I	X-tal oscillator input
9	XOUT	O	X-tal oscillator output
10	WDCH	O	Word clock of 48 bit / SLOT (Normal speed = 88.2 KHz, Double speed = 176.4KHz)
11	LRCH	O	Channel clock of 48 bit / SLOT (Normal speed = 44.1KHz, Double = 88.2KHz)
12	ADATA	O	Serial audio data output of 48 bit / SLOT (MSB first)
13	DVSS 1		Digital Ground 1
14	BCK	O	Audio data Bit clock for 48 bit / SLOT (Normal speed = 2.1168KHz, Double speed = 4.2336(KHz)
15	C2PO	O	C2 pinter for output audio data
16	VREFL2	I	Input terminal 2 of reference voltage "L" (Floating)
17	VREFL1	I	Input terminal 1 of reference voltage "L" (GND Connection)
18	AVDD2		Analog VCC2
19	RCHOUT	O	Right-Channel audio output through D/A Converter
20	LCHOUT	O	Left-channel audio output through D/A converter
21	AVSS2		Analog Ground 2
22	VREFH 1	I	Input terminal 1 of reference voltage "H" (V_{DD} connection)
23	VREFH 2	I	Input terminal 2 of reference voltage "H" (Floating)
24	EMPH	O	Emphasis / Non - Emphasis Output ("H":Emphasis)
25	LKFS	O	The Lock Status output of frame sync\
26	SOS 1	O	Output of subcode sync signal (S 0 + S 1)
27	RESET	I	System reset at "L"
28	SQEN	I	SQCK I/O Control ("L" : internal CK, "H" : external CK)
29	SQCK	I/O	Clock for output Subcode-Q data
30	SQDT	O	Serial output of Subcode-Q data
31	SQOK	O	The CRC check result signal output of subcode-Q
32	SBCK	I	CLOCK for output subcode-Q data
33	SDAT	O	Subcode serial data output
34	DV_{DD} 1		Digital Vcc 1
35	MUTE	I	Mute control Input ("H" : Mute ON)
36	MLT	I	Latch Signal Input from Micom
37	MDAT	I	Serial data Input from Micom
38	MCK	I	Serial Clock input from Micom
39	DB 8	I/O	SRAM data I/O Port 8 (MSB)
40	DB 7	I/O	SRAM data I/O Port 7
41	DB 6	I/O	SRAM data I/O Port 6

Pin No.	Symbol	I/O	Description
42	DB 5	I/O	SRAM data I/OPort 5
43	DB 4	I/O	SRAM data I/OPort 4
44	DB 3	I/O	SRAM data I/OPort 3
45	DB 2	I/O	SRAM data I/OPort 2
46	DB 1	I/O	SRAM data I/OPort 1
47	C1F1	I/O	Monitoring output for C1 error correction (RA 1)
48	C1F2	I/O	Monitoring output for C1 error correction (RA 2)
49	C2F1	I/O	Monitoring output for C2 error correction (RA 3)
50	C2F2	I/O	Monitoring output for C2 error correction (RA 4)
51	C2FL	I/O	C2 decoder flag (High : When the processing C2 code is impossible correction state) (RA5)
52	/PBCK	I/O	Output of VCO/2 (Normal speed = 4.3218MHz, Double speed = 8.6436MHZ) (RA
53	DV_{SS2}		Digital Ground 2
54	FSDW	I/O	Unprotected frame sync (RA7)
55	ULKFS	I/O	Frame sync protection state (RA8)
56	/JIT	I/O	Display of either RAM overflow or underflow for ± 4 frame jitter margin (RA9)
57	C4M	I/O	Only monitoring signal (Normal playback : 4.2336MHz) (RA10)
58	C16M	I/O	16.9344MHz signal output (RA11)
59	/WE	I/O	Terminal for test
60	/CS	I/O	Terminal for test
61	SEL 1	I	Mode Selection Terminal 1 (H : 33.8688MHz, L : 16.9344MHz)
62	SEL 2	I	Mode Selection Terminal 2 (H : APLL : DPLL)
63	SEL 3	I	Mode Selection Terminal 3 (H : CDROM L : CDP)
64	SEL 4	I	Mode Selection Terminal 4 (L : Internal SRAM)
65	TEST	I	Test Terminal (L = Normal operating state)
66	EFMI	I	EFM Signal input
67	APDO	O	Charge Pump output for analog PLL
68	/ISTAT	O	The internal status output
69	TRCNT	I	Tracking counter input signal
70	LOCK	O	Output signal of LKFS Condition sampled PBFR/16 (If LKFS is "H", Lock is "H". (If the LKFS is sampled "L" at least 8 times by PBFR/16, Lock is "L")
71	PBFR	O	Write frame clock (Lock : 7.35KHz)
72	SMEF	O	LPF time constant control of the spindle servo error signal
73	SMON	O	ON/OFF control signal for spindle servo
74	DV_{DD2}		Digital V_{CC} 2
75	SMPD	O	Spindle Motor drive (Rough control in the CLV-S mode Phase control in the CLV-P mode)
76	SMSD	O	Spindle Motor drive (Velocity control in the CLV-P mode)
77	VCO_{O1}	O	V_{CO} output signal (When the state is lock by means of PBFR, it is 8.643MHz)
78	V_{COI1}	I	VCO input signal
79	DSPEED	I	Double speed mode control (H : Normal Speed, L : Double Speed)
80	APD02	O	Analog PLLCharge Pump output for Double Speed mode

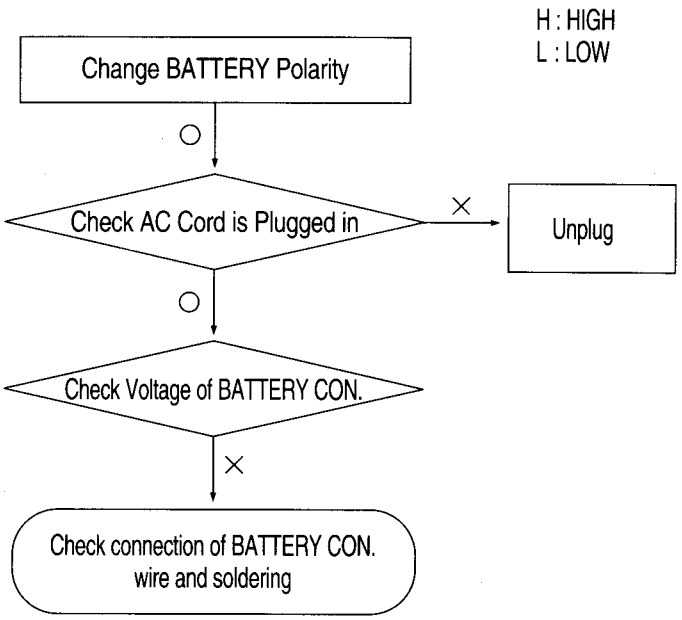
6. Troubleshooting

6-1. Main section

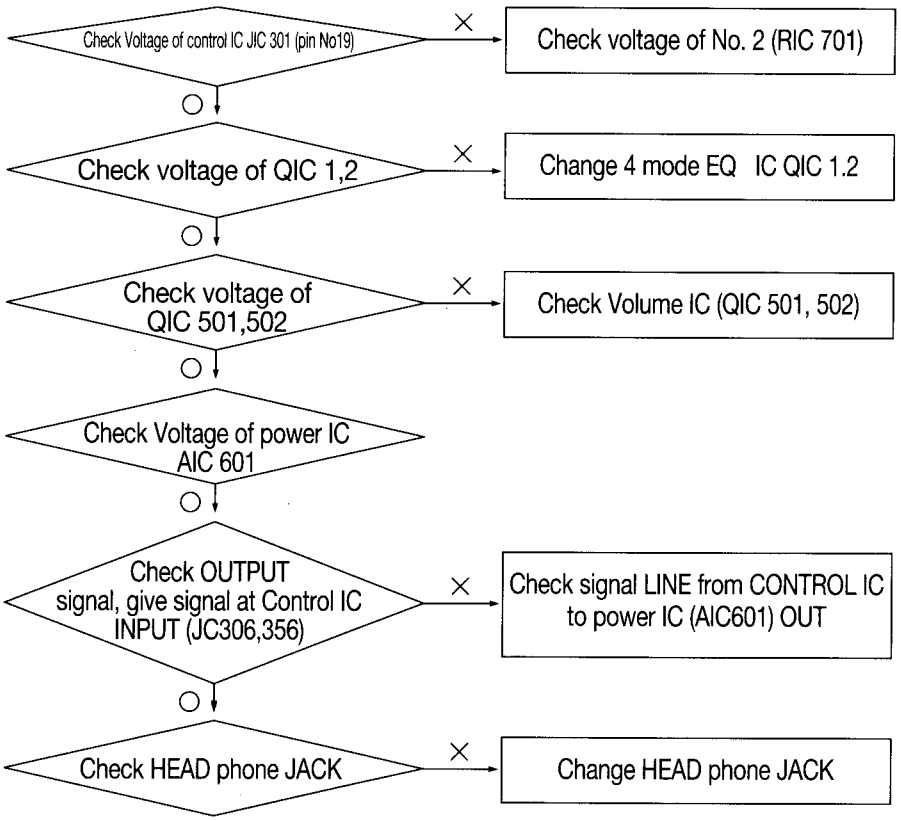
6-1-1. AC power insensible


Check AC cord connection
Check setting of voltage selector switch (option)
Check voltage of power transformer secondary
Change power TRANS
Check RF 701(FUSE)
Change Fuse
Check voltage of RW1
Check connection of RW1 wire and soldering
Check Voltage of UIC1 (No. 54)
Check μ -com regulator circuit (RIC701)
Check LCD display(CLOCK)
Power switch ON
Change voltage of RQ702 (BASE)
Check voltage of RQ701 (Collector)
Change RQ 701

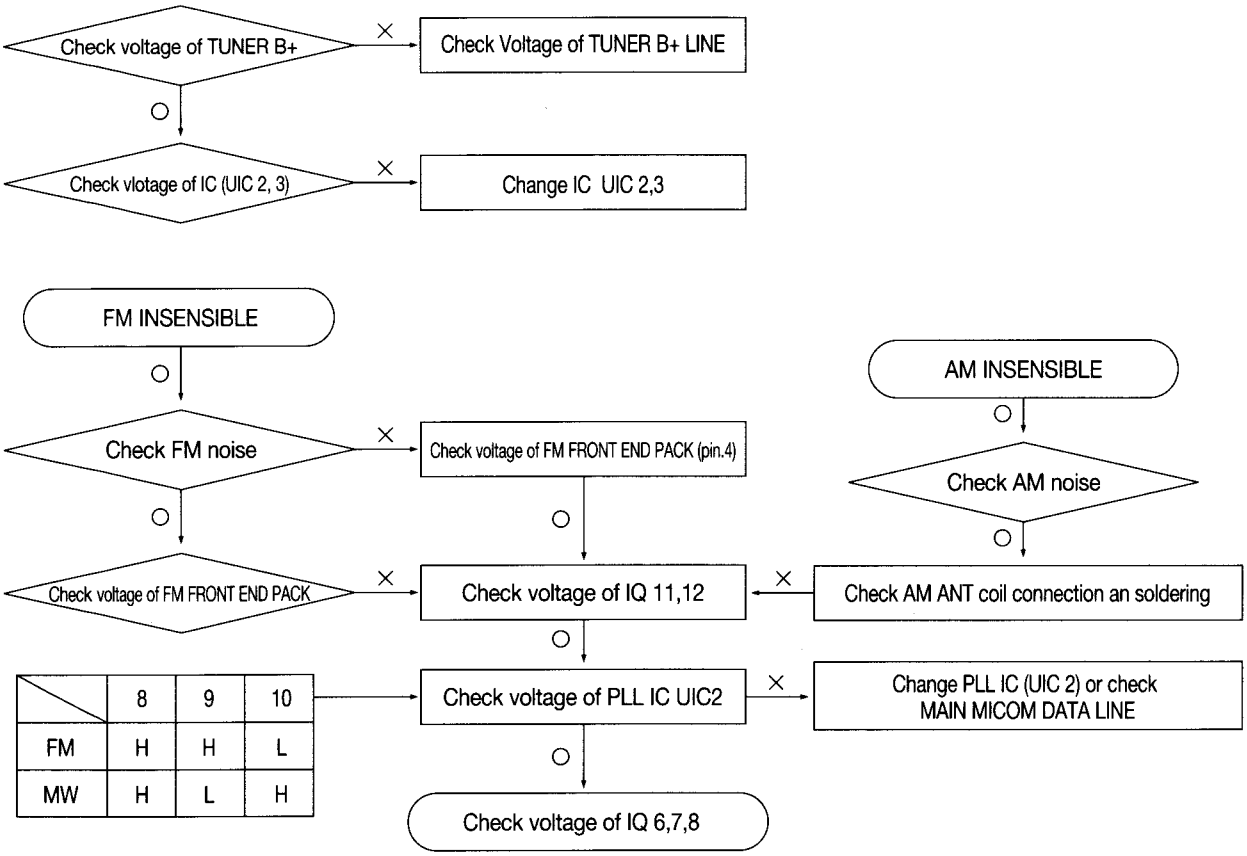
6-1-2. Battery power insensible



6-1-3. No output

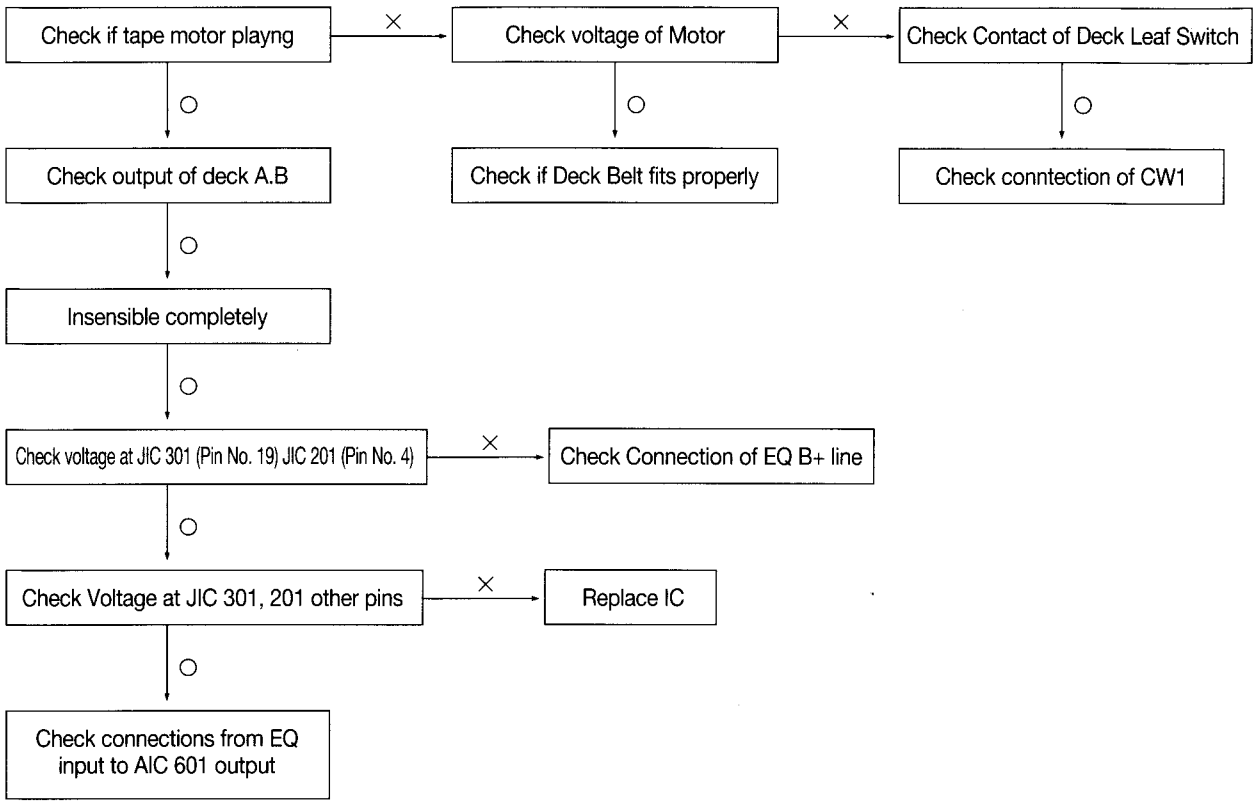


6-1-4. Radio insensible

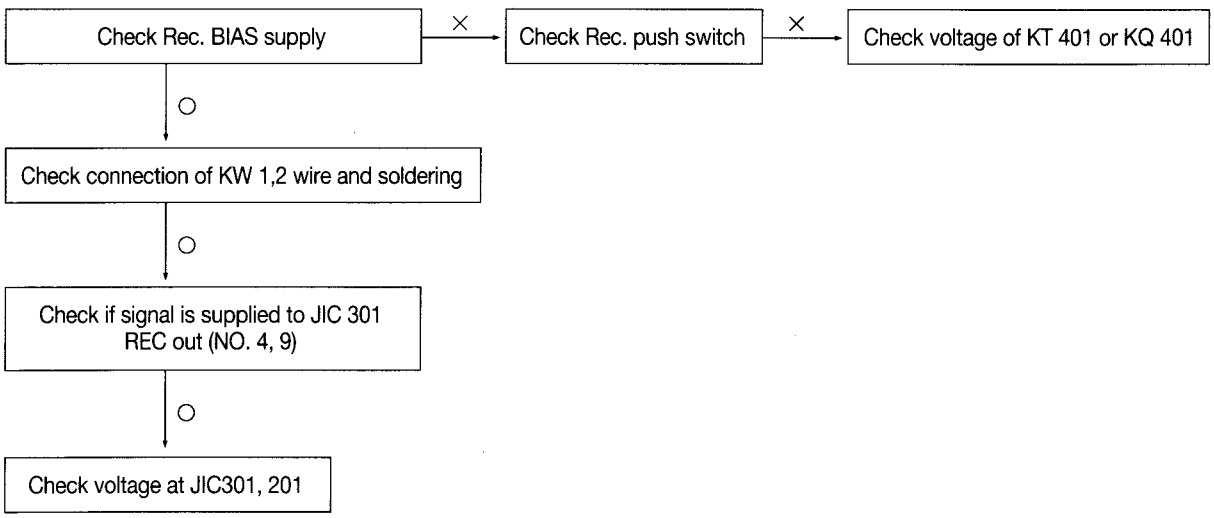

Check voltage of TUNER B+
Check Voltage of TUNER B+ LINE
Check vlotage of IC (UIC 2, 3)
Change IC UIC 2,3
FM INSENSIBLE
Check FM noise
Check voltage of FM FRONT END PACK (pin.4)
Check voltage of FM FRONT END PACK
Check voltage of IQ 11,12
AM INSENSIBLE
Check AM noise
Check AM ANT coil connection an soldering
Check voltage of PLL IC UIC2
Change PLL IC (UIC 2) or check MAIN MICOM DATA LINE
Check voltage of IQ 6,7,8

	8	9	10
FM	H	H	L
MW	H	L	H

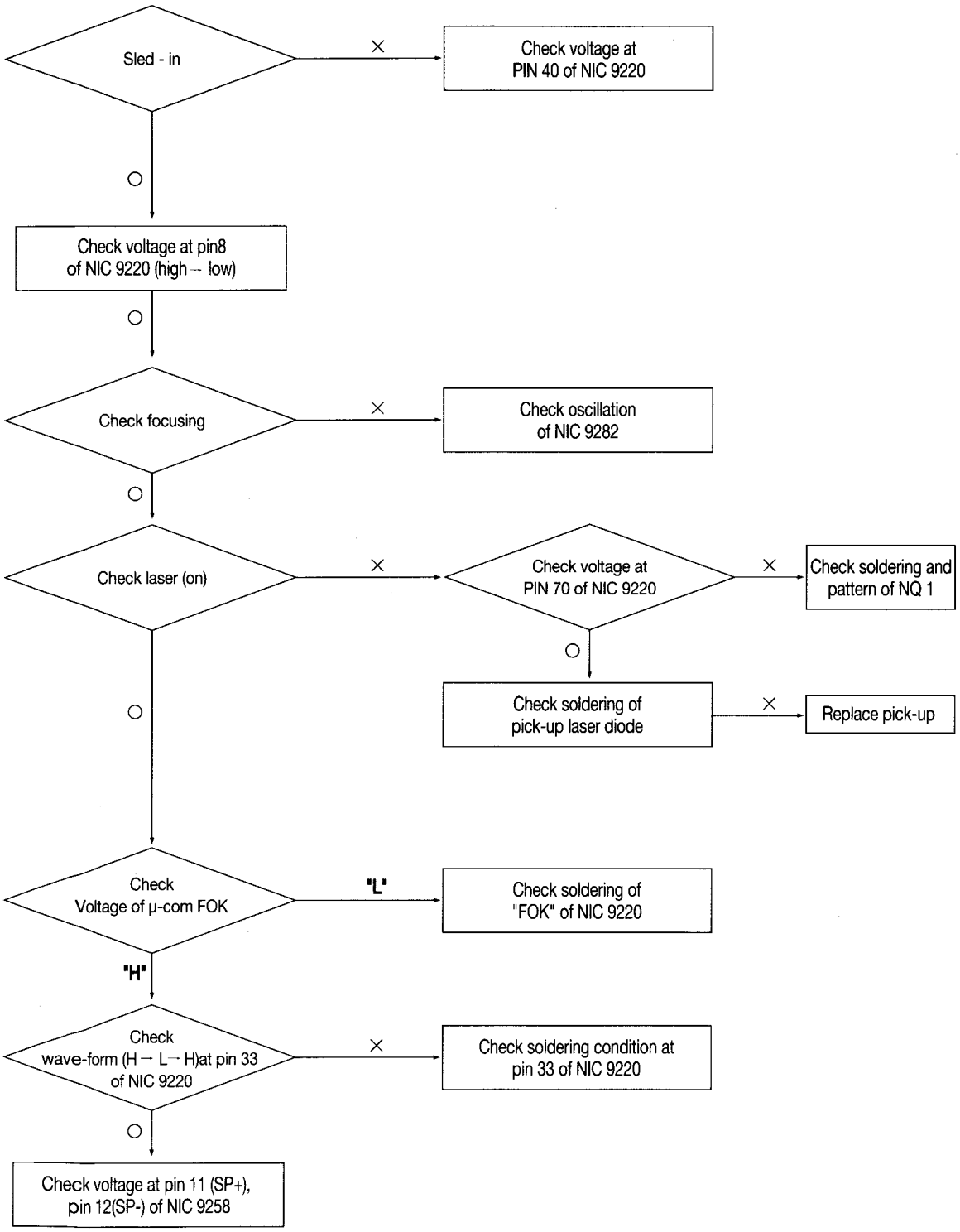
6-1-5. Tape not working



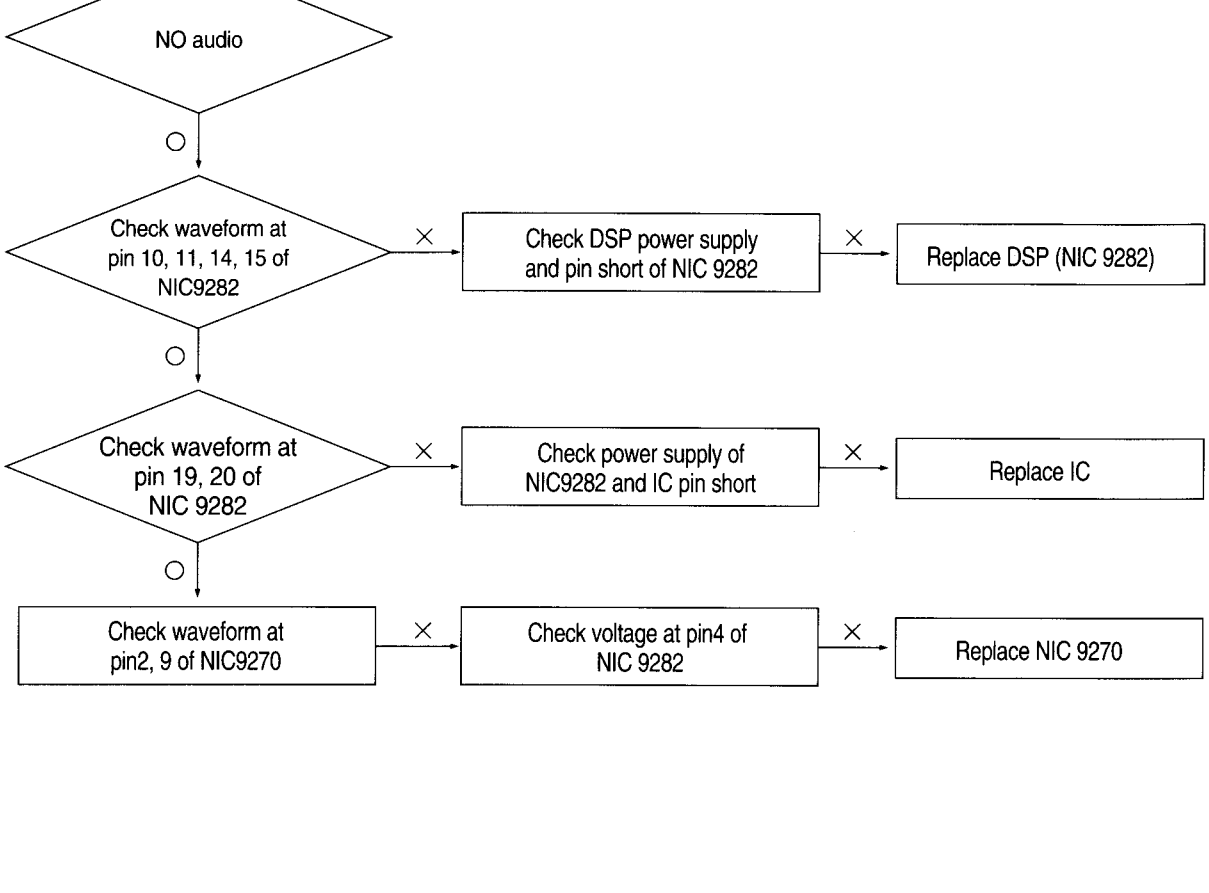
6-1-6. Record not working


Check Rec. BIAS supply
×
Check Rec. push switch
×
Check voltage of KT 401 or KQ 401
O
Check connection of KW 1,2 wire and soldering
O
Check if signal is supplied to JIC 301 REC out (NO. 4, 9)
O
Check voltage at JIC301, 201

6-2. CD section
6-2-1. No disc error



6-1-2. No audio


NO audio
O
Check waveform at pin 10, 11, 14, 15 of NIC9282
X
Check DSP power supply and pin short of NIC 9282
X
Replace DSP (NIC 9282)
O
Check waveform at pin 19, 20 of NIC 9282
X
Check power supply of NIC9282 and IC pin short
X
Replace IC
O
Check waveform at pin2, 9 of NIC9270
X
Check voltage at pin4 of NIC 9282
X
Replace NIC 9270

7. Adjustment

7-1. Tuner section

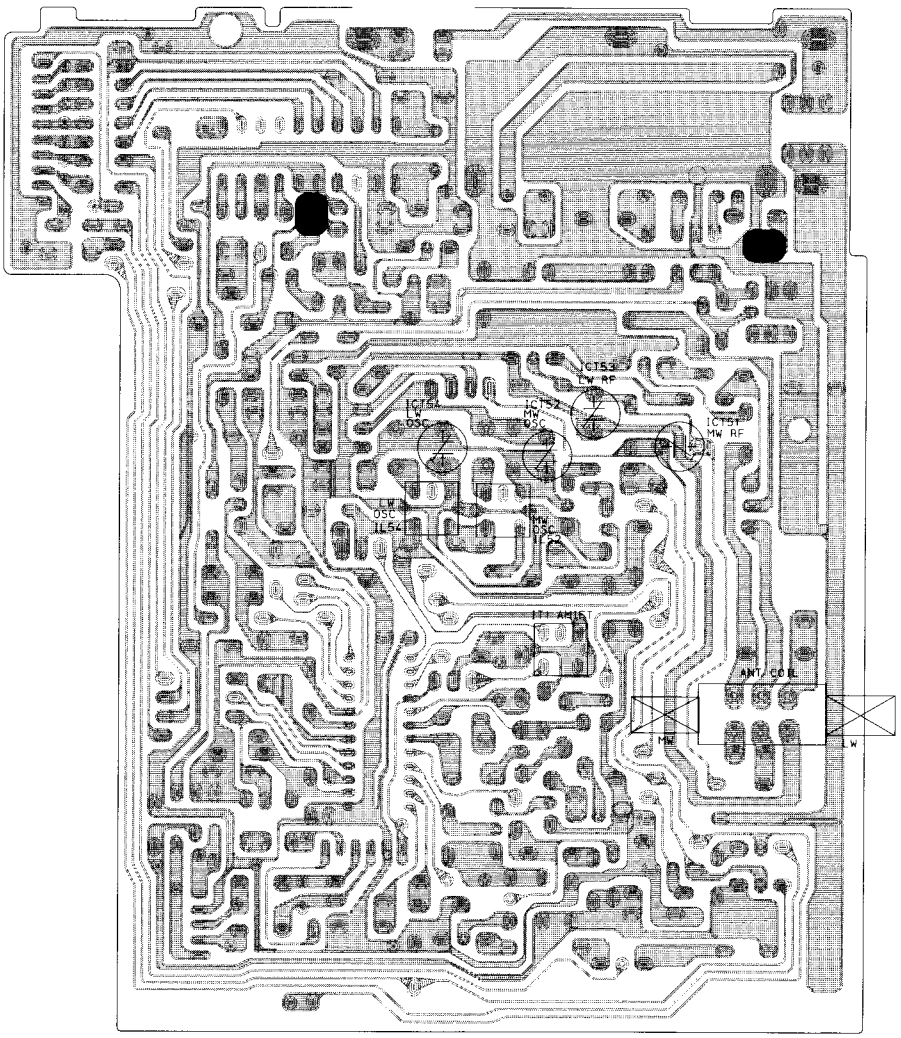
7-1-1. Instruments and tools

(1) AM STANDARD SIGNAL GENERATOR
(2) FM STANDARD SIGNAL GENERATOR
(3) FM/AM IF GENERATOR : 10.7MHz, 450KHz
(4) OSCILLOSCOPE
(5) OUTPUT METER : LEVEL METER or AC VOLTMETER
(6) LOOP ANTENNA
(7) DUMMY LOAD (4 ohm)
(8) FREQUENCY COUNTER
(9) FM STEREO MODULATOR

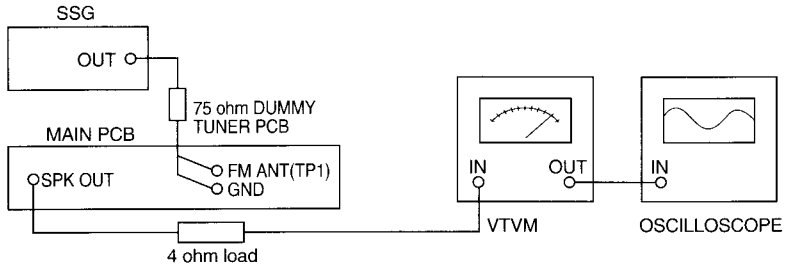
7-1-2. Important

(1) Check the power source voltage.
(2) Select desired band and function.
(3) Set tone control at mid position.
(4) Modulate AM to 30% amplitude with 400Hz signal and FM to 22.5KHz deviation with 1kHz signal.
(5) Set volume control to approximately 50mW (4 ohm).

7-1-3. Adjustment point location (Tuner section)



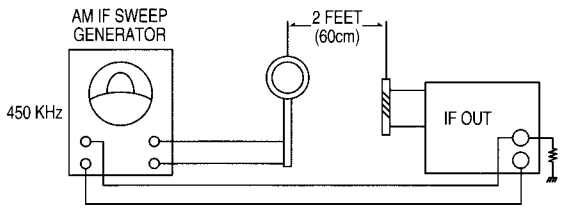
(1) FM section do not adjustment
(No adjustment)



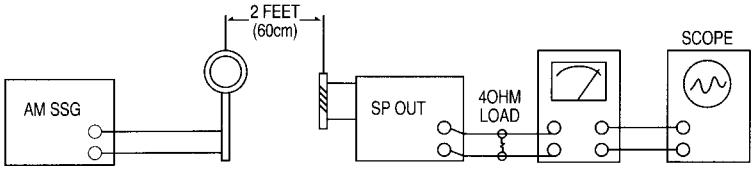
(FIG. 1)

(2) 2 Band (FM/AM) AM adjustment

Item	Connection	Step	S.S.G Frequency	Radio frequency setting	Adjustment point	Result
AM IF	FIG. 2	1	450KHz	Lowest frquency	AM IFT IT1	Maximum output and best "V" curve
		2	Repeat 1 until no futher improvement can be made.			
AM coverage	FIG. 3	3	522KHz	522KHz	AM OSC COIL (RED) IL52	1.3V ± 0.05
		4	1611KHz	1611KHz	MW OSC TRIMMER ICT52	8.0V ± 0.05
		5	Repeat steps 2 and 4 several times.			
AM tracking	FIG.3	6	594KHz	594KHz	AM ANT COIL	Maximum output
		7	1404KHz	1404KHz	AM ANT TRIMMER ICT51	Maximum output
		8	Repeat steps 6 and 7 to obtain suitable sensitivity at 594KHz and 1404KHz.			



(FIG. 2)



(FIG. 3)

(3) 3 BAND (FM/MW/LW) adjustment

Item	Connection	Step	S.S.G Frequency	Radio frequency setting	Adjustment point	Result
IF	IF is the same as 2 band's					
MW coverage	FIG. 3	1	531kHz (or 522kHz)	531kHz (or 522kHz)	MW OSC COIL COIL(RED) IL52	1.3V± 0.05
		2	1602kHz	Tune to the highest frequency	MW OSC TRIMMER ICT52	8.0V± 0.05
		3	Reapeat steps 1 and 2 several times.			
MW tracking	FIG. 3	4	594KHz	594KHz	AM ANT COIL	Maximum output
		5	1404KHz	1404KHz	AM ANT ICT51 TRIMMER	Maximum output
		6	Repeat steps 4 and 5 to obtain suitable sensitivity at 594kHz and 1404kHz.			
LW frequency	FIG. 3	7	146KHz	146KHz	LW OSC COIL IL54	1.1V± 0.05
		8	290KHz	290KHz	LW OSC TRIMMER	4.9V± 0.05
		9	Respeat steps 7 and 8 several times			
LW tracking	FIG. 3	10	170KHz	170KHz	LW ANT COIL	Maximum output
		11	270KHz	270KHz	LW RF TRIMMER ICT53	Maximum output
		12	Repeat steps 10 and 11 to obtain suitable sensitivity at 170KHz and 270KHz.			

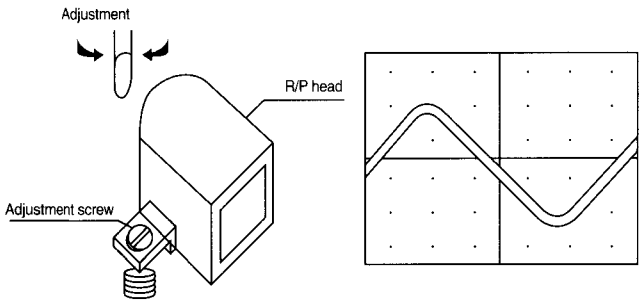
7-2. Tape section

(1) Tape azimuth adjustment

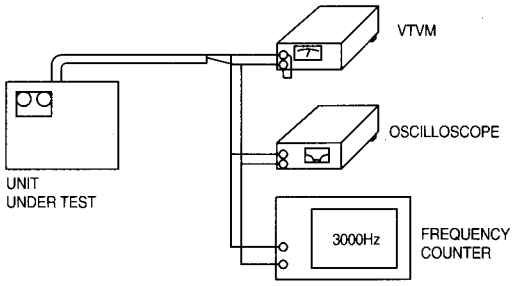
① Connect the equipments as per FIG. 5 to adjust the tape azimuth with test tape (recorded at 6.3KHz MTT-113N).
② Play the test tape after inserting in deck .
③ Adjust the azimuth adjustment screw of left side of REC/PLAY head for maximum output and for the same channel phase. (see FIG. 4).
④ After adjustment be sure to lock the adjusting screws.

(2) Tape speed adjustment

① Connect the equipments as shown in FIG. 5.
② Insert a test tape (3KHz : MTT-111N) into deck.
③ Adjust CSV802 so that frequency counter reads 3KHz.



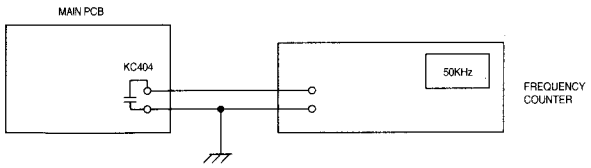
(FIG. 4)



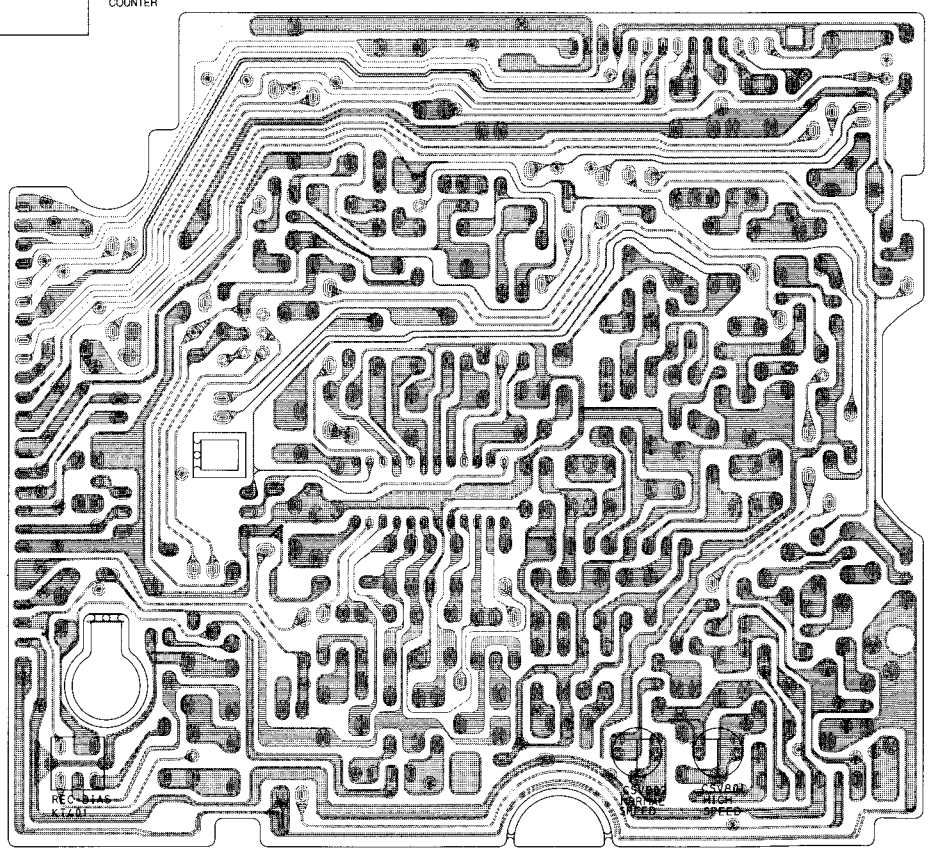
(FIG. 5)

(3) Recording bias adjustment

① Connect frequency counter KC404 and press the REC button.
② Adjust KT401 (BIAS OSC COIL) until frequency counter reads 50±0.2KHz on beat cut switch (center position)



(FIG. 6)



7-3. CD section

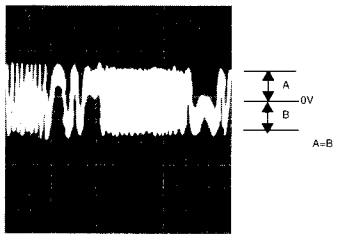
7-3-1. Focus bias adjustment

(1) Turn power on without loading a disc.
(2) Set oscilloscope voltage/DIV to DC 20mV.
(3) Vref to GND and TP 2 (FE) to positive terminal on the oscilloscope.
(4) Adjust NVR1701 so that the voltage is 0mV DC on the oscilloscope.

7-3-2. E. F balance adjustment

(1) Turn power on.
(2) Set oscilloscope TIME/DIV to 2mS.
(3) Set oscilloscope voltage/DIV to 0.5V.
(4) Vref to GND and TP2 to positive terminal on the oscilloscope.
(5) Press PLAY with loading a disc.
(6) Adjust NVR1704 all the way counterclockwise (Intermittent sound).
(7) Adjust NVR1702 so that the wave-form is equally symmetrical (in reference to GND).
(8) Adjust NVR1704 so that sound comes out normally (Nearly mid-position of VR1704).

NVR 1701



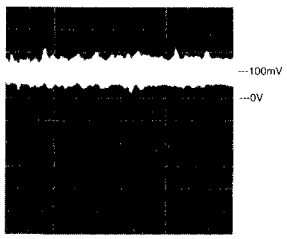
NVR 1702

VOLT/DIV : 0.5 V
TIME/DIV : 2mS

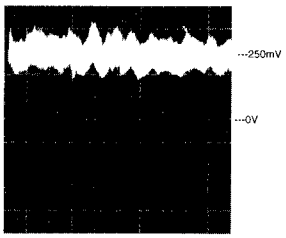
7-3-3. Focus gain adjustment

(1) Turn power on.
(2) Vref to GND and TP1 (FE) to positive terminal on the oscilloscope.
(3) Press PLAY after loading a disc.
(4) Adjust NVR1703 so that the wave-form is as shown in the figure.

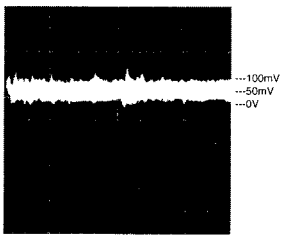
(Normal waveform) **(Low focus gain)** **(High focus gain)**



VOLT/DIV : 0.1 V
TIME/DIV : 2mS



VOLT/DIV : 0.1 V
TIME/DIV : 2mS



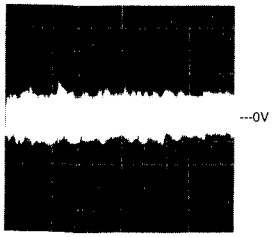
VOLT/DIV : 0.1 V
TIME/DIV : 2mS

NVR 1703

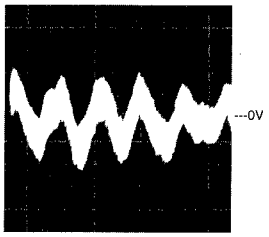
7-3-4. Tracking gain adjustment

(1) Turn power on.
(2) Vref to GND and TP2 (TE) to positive terminal on the oscilloscope.
(3) Press PLAY after loading a disc.
(4) Adjust NVR1704 so that the wave-form is as shown in the figure.

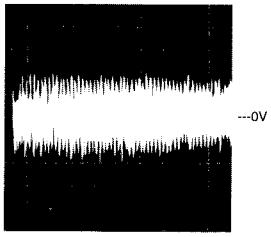
(Normal wave-form) **(Low tracking gain)** **(High tracking gain)**



VOLT/DIV : 0.1 V
TIME/DIV : 2mS



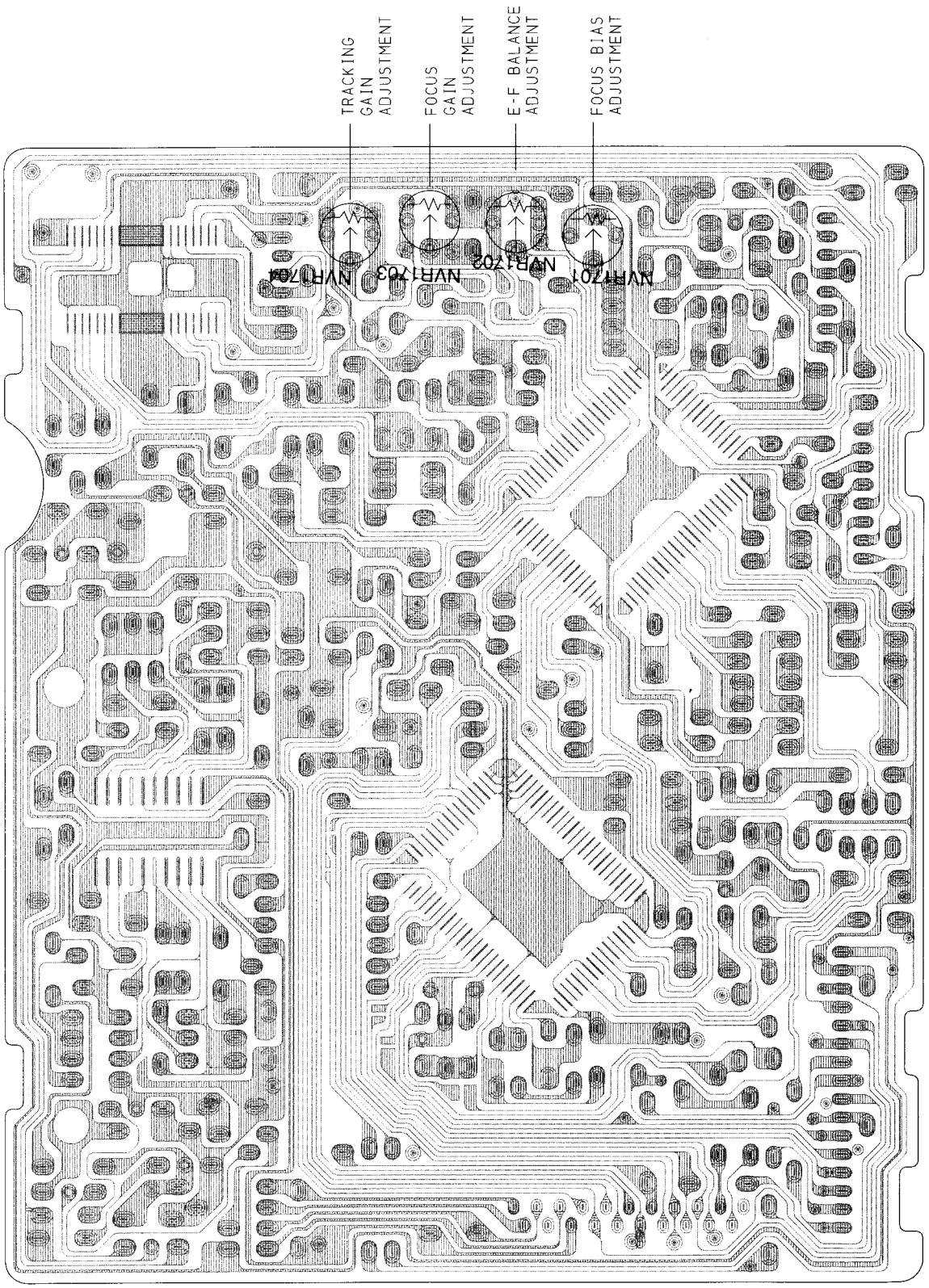
VOLT/DIV : 0.1 V
TIME/DIV : 2mS



VOLT/DIV : 0.1 V
TIME/DIV : 2mS

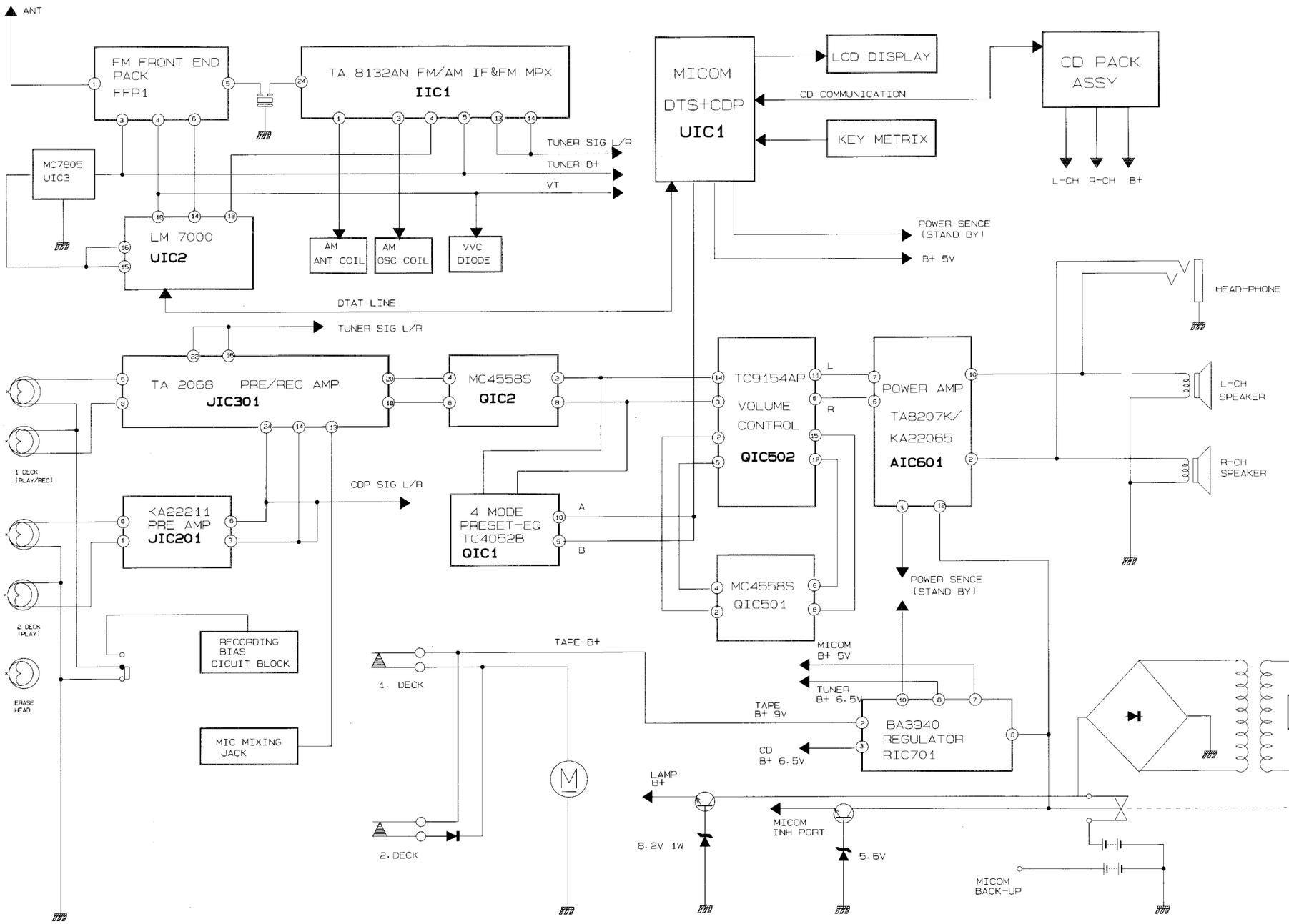
NVR 1704

7-3-5. Location of adjustments points

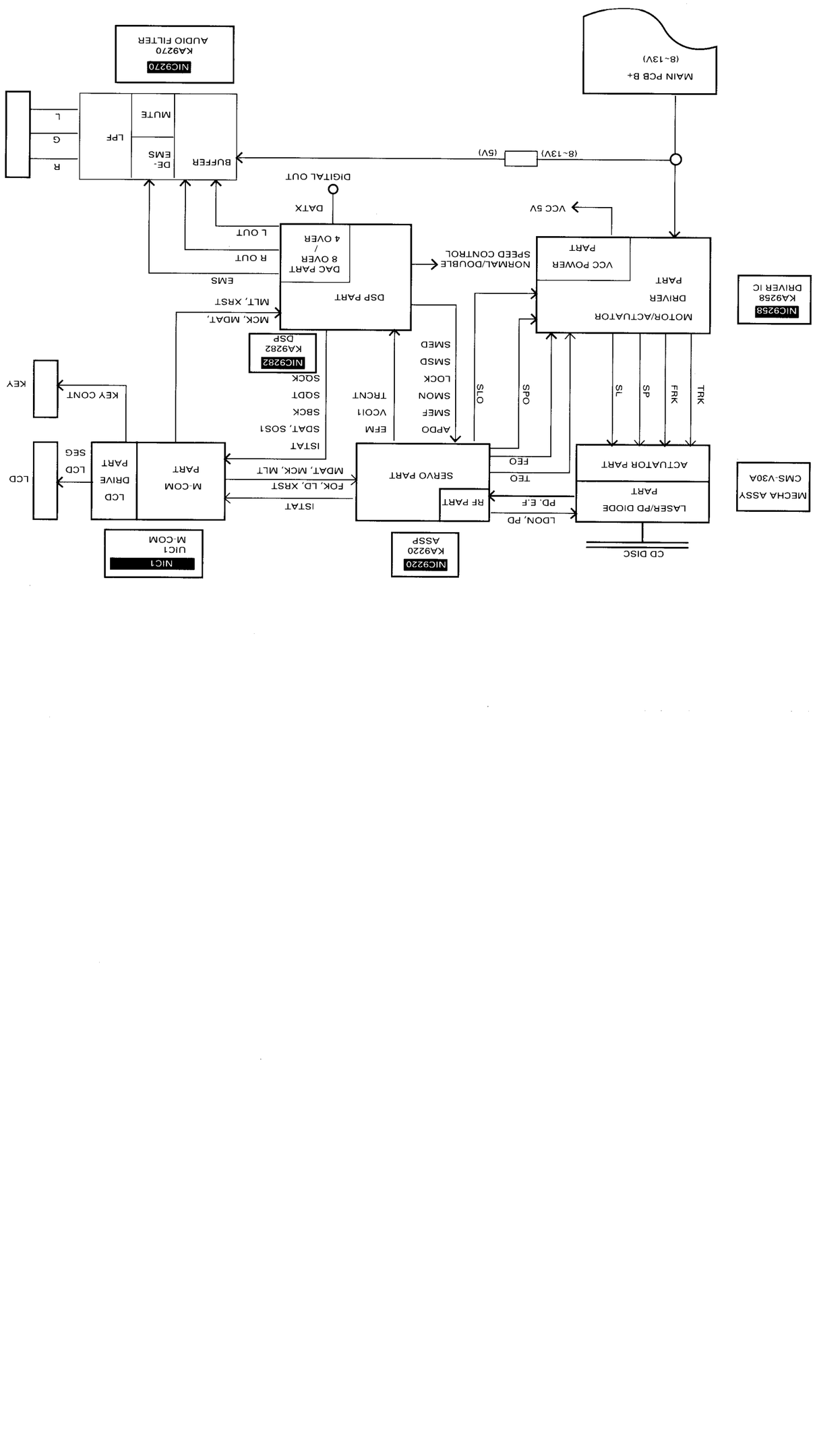


8. Block diagram

8-1. Main section



8-2. CD section



MC-Service

RCD-1650

9. Exploded view & parts list

9-1. Main section

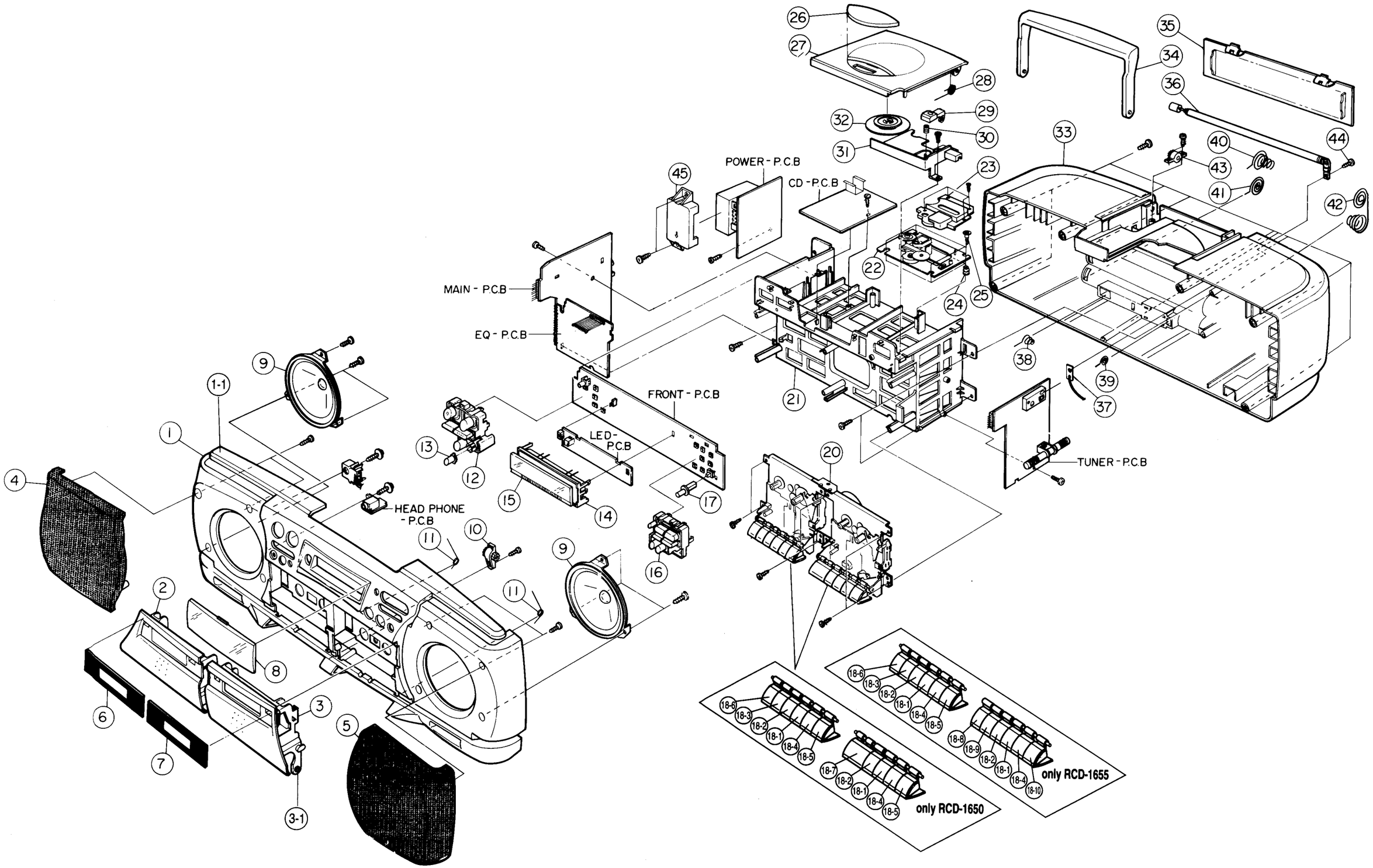
9-1-1. Parts list

(● Exclutive part)

No.	Code no.	Description	Specification	Q'TY	Remark
1	12000-0269-00	CABINET-FRONT	RCD-1650 D/BLUE MIPS	1	
1-1	12000-0269-02	CABINET-FRONT	RCD-1650 D/BLUE MIPS	1	Only RCD-1655
2	14042-0131-00	DOOR-CST(L)	RCD-1650 D/BLUE ABS	1	
3	14042-0132-00	DOOR-CST(R)	RCD-1650 D/BLUE ABS	1	
3-1	14042-0132-03	DOOR-CST(R)	RCD-1650 D/BLUE ABS	1	Only RCD-1655
4	14001-0039-00	GRILLE-SPK(L)	RCD1650 BLK MIPS+JURSEY	1	
5	14001-0040-00	GRILLE-SPK(R)	RCD-1650 BLK MIPS+JURSEY	1	
6	14074-0249-00	WINDOW-CST(L)	RCD-1650 T0.5 PC	1	
7	14074-0250-00	WINDOW-CST(R)	RCD-1650 T0.5 PC	1	
8	14073-0248-00	WINDOW-LCD	RCD-1650 TRP ACRYL	1	
9	A1300-0069	SPEAKER-GENERAL	5W 40HM 127MM B100/100894K 3	2	
10	12663-0010-00	DAMPER-ASSY	MODULE 0.8 DOUBLE	1	
11	12724-0184-00	SPRING-CASSETTE(L/R)	RCD-1650 PI0.9 SUS	2	
12	14082-0668-00	KNOB-FUNCTION(A)	RCD-1650 D/BLU ABS	1	
13	14084-0670-00	KNOB-VOICE	RCD-1650 TRP ACRYLE	1	
14	13323-0198-00	HOLDER-LCD	RCD-1650 BLK ABS	1	
15	A4155-0074	LCD	LE-06127A RCD1650	1	
16	14082-0669-00	KNOB-FUNCTION(B)	RCD-1650 D/BLUE ABS	1	
17	14084-0681-00	KNOB-SBS	RCD-1650 D/BLUE ABS	1	
18-1	14083-0671-00	KNOB-DECK(FF)	RCD-1650 D/BLUE ABS	2	RCD-1650
18-2	14083-0672-00	KNOB-DECK(REW)	RCD-1650 D/BLUE ABS	2	"
18-3	14083-0673-00	KNOB-DECK(PLAY)	RCD-1650 D/BLUE ABS	1	"
18-4	14083-0674-00	KNOB-DECK (ST/EJ)	RCD-1650 D/BLUE ABS	2	"
18-5	14083-0675-00	KNOB DECK(PAUS)	RCD-1650 D/BLUE ABS	2	"
18-6	14083-0676-00	KNOB DECK(REC)	RCD-1650 D/BLUE ABS	1	"
18-7	14083-0677-00	KNOB DECK(LARGE)	RCD-1650 D/BLUE ABS	1	"
18-1	14083-0671-00	KNOB-DECK(FF)	RCD-1650 D/BLUE ABS	2	RCD-1655
18-2	14083-0672-00	KNOB-DECK(REW)	RCD-1650 D/BLUE ABS	2	"
18-3	14083-0673-00	KNOB-DECK(PLAY)	RCD-1650 D/BLUE ABS	1	"
18-4	14083-0674-00	KNOB-DECK (ST/EJ)	RCD-1650 D/BLUE ABS	2	"
18-5	14083-0675-00	KNOB DECK(PAUS)	RCD-1650 D/BLUE ABS	1	"
18-6	14083-0676-00	KNOB DECK(REC)	RCD-1650 D/BLUE ABS	2	"
18-8	14083-0680-00	KNOB DECK(MODE)	RCD-1650 D/BLUE ABS	1	"
18-9	14083-0678-00	KNOB DECK(AUTO)	RCD-1650 D/BLUE ABS	1	"
18-10	14083-0679-00	KNOB DECK(DIRECTION)	RCD-1650 D/BLUE ABS	1	"
20	19049-0034-00	ASSY DECK TAPE	RCD-1650 BASIC	1	
21	12200-0147-00	CHASSIS-MAIN	RCD-1650 BLK ABS	1	
22	*CMS A30AM6	DECK CD	CMSA30AM6	1	
23	16033-507-011	CAP PICK UP	ABS HF-0660I BLK	1	
24	16174-503-410	RUBBER CD	RCD-1200 SI RUBBER	1	
25	15104-531-720	SHAFT-CD	FE FZW 2.6 X 11.5	1	
26	14073-0247-00	WINDOW-CD DOOR	RCD-1650 TRP ACRYL	1	
27	14042-0133-00	DOOR-CD	RCD-1650 D/BLU ABS	1	
28	12724-0185-00	SPRING-CD OPEN	RCD-1650 PI1.0 SUS	1	

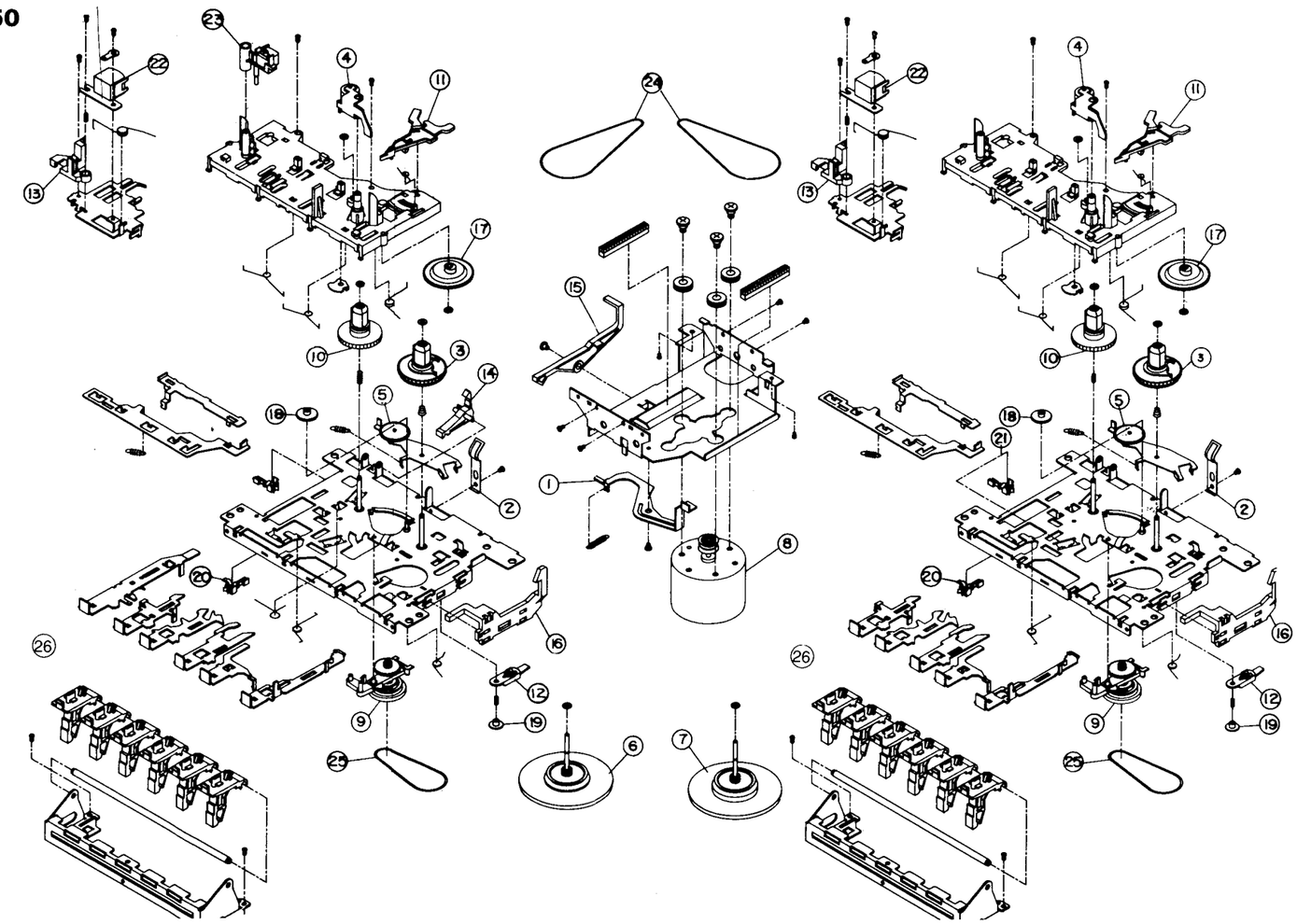
No.	Code no.	Description	Specification	Q'TY	Remark
29	14083-0667-00	KNOB-CD OPEN	RCD-1650 D/BLUE ABS	1	
30	12724-0186-00	SPRING-CD EJECT	RCD-1650 PI0.5 SUS	1	
31	13322-0197-00	HOLDER-CD	RCD-1650 D/BLUE ABS	1	
32	16603-511-840	CHUCK-PLATE	ABS+GF BLK NEW RCD-1360	1	
33	12000-0270-00	CABINET-BACK	RCD-1650 D/BLUE MIPS	1	
34	14033-0023-00	HANDLE	RCD-1650 D/BLUE ABS	1	
35	14103-0042-01	LID-BATTERY	RCD-1650 LOGO	1	
36	14509-316-050	ANT-ROD	5.2PI 728MM 4S	1	
37	16624-580-810	BRACKET-ANT	SPTE T0.3 TCD1300	1	
38	16674-572-010	SPRING-BATTERY(+)	HSW0.8 RCD-950	1	
39	16674-572-111	SPRING-BATTERY(-)	HWW0.8 RCD-950	1	
40	16674-531-770	SPRING-BATTERY(-)	RCD1700 SUS PI1.2	1	
41	16674-531-812	SPRING-BATTERY "+,-"	RCD-1650 SUS PI1.2	1	
42	16674-531-610	SPRING-BATTERY,B	SWP PI1.0 FNZ W700	1	
43	15214-506-014	DAMPER-ASSY	POM PD790	1	
44	17008-130-105	SCREW-PH	+M3X10 FE,FN	2	
45	13323-0208-00	HOLDER P/T	RCD-1650 ABS	1	

9-1-2. Exploded view (RCD-1650/1655)



9-2. Cassette deck exploded view & parts list

9-2-1. Exploded view (ADR2002FW) -only RCD - 1650

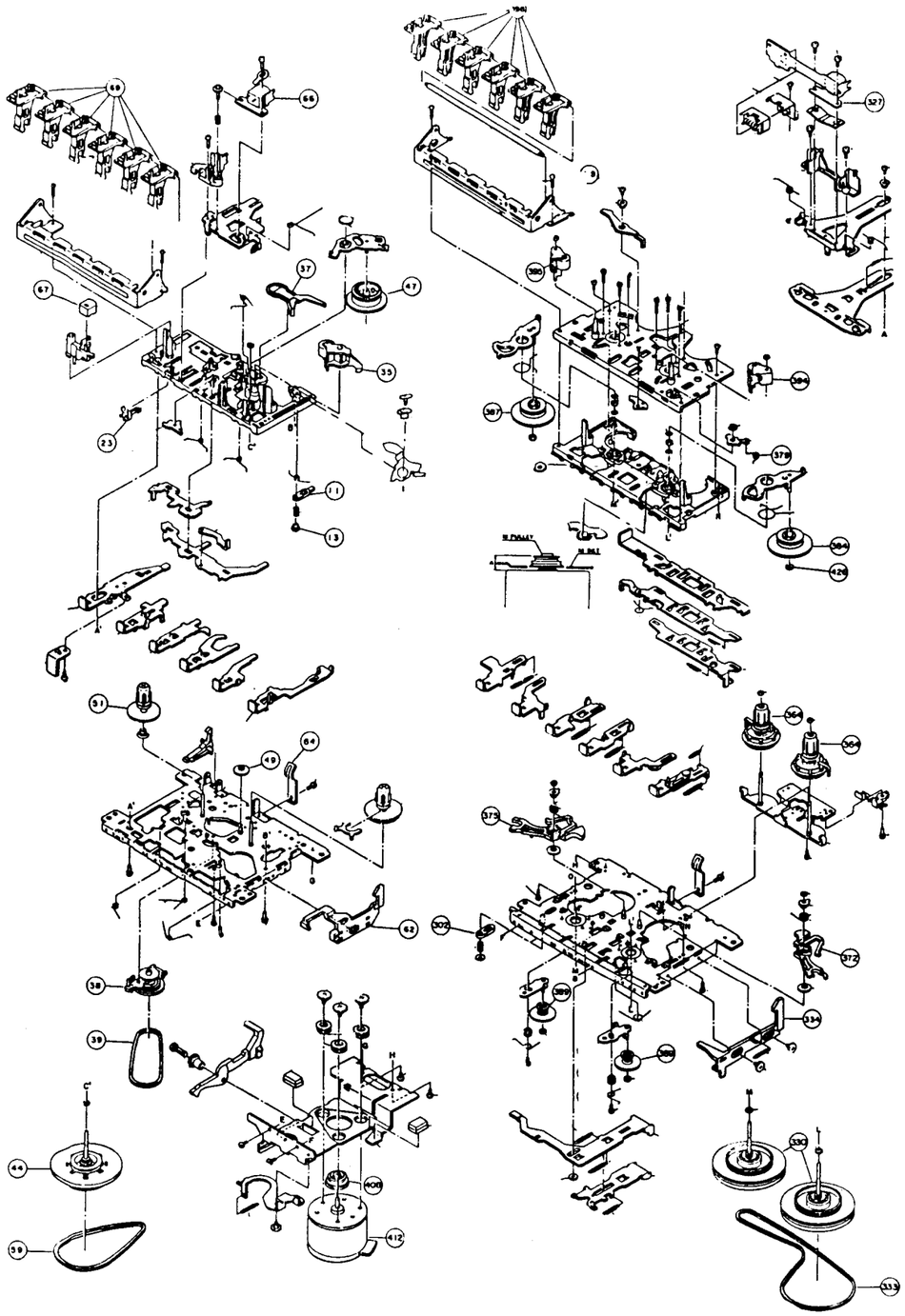


9-2-2. Parts list

No.	Code no.	Description & Specification	Q'ty	Remark
	17159-0074-00	DECK-CASSETTE ; ADR2002FW/ADR2002FWU		
1	10000-607-186	LEVER-SYNCHRO ; 11134-01280AA	1	
2	10000-607-146	SPRING-PACK ; 51299-02506XC	2	
3	10000-607-101	TAKE UP REEL ASSY ; ADR28-010	2	
4	10000-607-103	PINCH ARM ASSY ; ADR26-001	2	
5	10000-607-104	IDLER ARM ASSY ; ADR02-042	2	
6	10000-607-105	FLYWHEEL GEAR S ASSY ; ADR15-021	1	
7	10000-607-106	FLYWHEEL GEAR D ASSY ; ADR15-022	1	
8	10000-502-011	MOTOR ; EG530YD9B	1	
9	10000-607-108	FR ARN ASSY ; ADR22-012	2	
10	10000-607-109	SUPPLY REEL GEAR ASSY ; 11128-00045AA	2	
11	10000-607-117	ARM-SENSOR ; 11102-00530AA	2	
12	10000-607-111	PAUSE LOCK CAM ; 11116-00011AA	2	

No.	Code no.	Description & Specification	Q'ty	Remark
13	10000-607-113	HEAD BASE M ; 11105-00031AA	2	
14	10000-607-145	LEVER REC SAFETY ; 11134-01000AA	1	
15	10000-607-184	LEVER RELEASE ; 1134-01240AA	1	
16	10000-607-160	REVER EJECT(F) ; 11134-01220AA	2	
17	10000-607-114	CAM GEAR ; 11128-00055AA	2	
18	10000-607-115	F.F GEAR ; 11128-00393AA	2	
19	10000-607-116	PAUSE CAP ; 11116-00011AA	2	
20	10000-607-178	LEAF SW(MAIN) ; MSW1541XACV	2	
22	10000-523-008	R/P HEAD ; MS15R-AA2N1	2	
23	10000-607-162	MGARM ASSY ; 11102-00520AA	1	
24	10000-607-159	BELT MAIN ; 59.7PI X 1.0T	2	
25	10000-607-156	BELT SUB ; 34.7PI X 1.0T	2	
26	10000-607-128	BUTTON KNOB ; 11133-00010AA	12	

9-2-3. Exploded view (TN521ZSW-446Z) -only RCD -1655

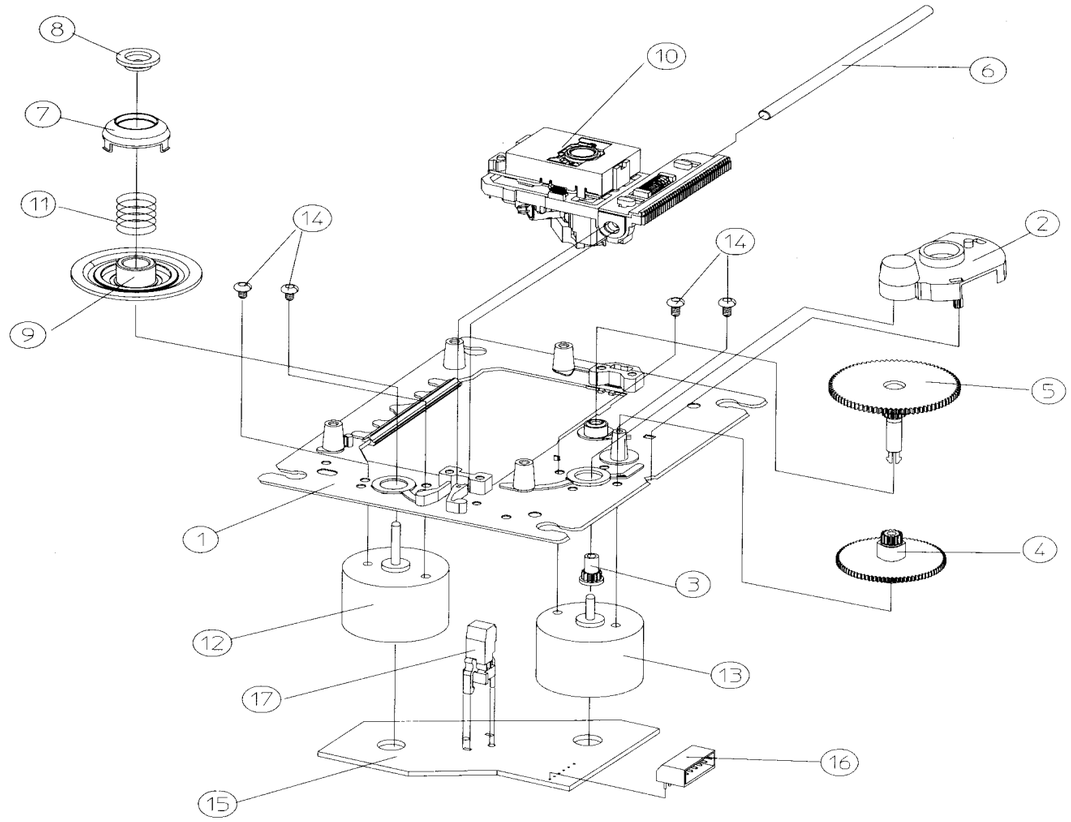


9-2-4. Parts list

No.	Code no.	Description & Specification	Q'TY	Remark
	17159-0076-00	DECK ASS'Y ; TN521ZSW-446Z	1	
11	10000-268-011	PAUSE LEVER ; 1821-14-55	1	
13	10000-268-013	PAUSE STOPPER ; 1921-14-11	1	
23	10000-268-023	LEAF SWITCH ; MSW-1541T	1	
35	10000-268-035	PINCH ROLLER ARM ASS 'Y ; 1921-04-301	1	
37	10000-268-038	SENSING LEVER ; 1921-26-04	1	
38	10000-268-039	RF CLUCH ASSY ; 1921-07-302	1	
39	10000-268-040	RF BELT ; 1921-07-03	1	
44	10000-268-044	FLYWHEEL ASSY ; 1921-09-303	1	
47	10000-268-047	CAM GEAR ; 1921-26-02	1	
49	10000-268-049	FF GEAR ; 1821-10-70	1	
51	10000-268-051	SUPPLY REEL ASSY ; 1921-05-304	1	
52	10000-268-052	TAKE UP REEL ASSY ; 1921-05-303	1	
53	10000-268-053	SENSOR ; 1921-05-06	1	
59	10000-268-159	MAIN BELT ; 1821-12-173	1	
62	10000-268-062	EJECT SLIDE LEVER ; 1921-13-02	1	
64	10000-268-064	PACK SPRING ; 1821-10-93	1	
66	10000-523-008	R/P HEAD ; MS15RAA2NI	1	
67	10000-542-002	E-HEAD ; PHK380-MS16A	1	
69	10000-186-093	KNOB BASE(TN21F) ; 1821-31-07	2	
302	10000-186-011	PAUSE LEVER ; 1821-01-15	1	
327	10000-524-021	PB HEAD ; MR359-KF243	1	
330	10000-601-065	FLYWHEEL ASSY ; 1851-12-501	2	
333	10000-601-066	MAIN BLET ; 1821-12-142	1	
334	10000-601-010	EJECT SLIDE LEVER ; 1851-17-03	1	
364	10000-601-057	REEL ASSY ; 1851-11-501	2	
372	10000-601-005	AUTO LEVER (F) ; 1851-20-01	1	
375	10000-601-008	AUDO LEVER(R) ; 1851-20-02	1	
379	10000-601-015	TURN OVER SPRING ; 1851-03-02	1	
381	10000-601-058	LEAF SW ; MSW1290CV	1	
384	10000-601-019	T-CAM GEAR(F) ; 1851-05-03	1	
387	10000-601-022	T-CAM GEAR(R) ; 1851-06-02	1	
389	10000-601-061	FF GEAR ; 1851-07-03	2	
394	10000-601-054	PINCH ROLLER(F) ASSY ; 1851-09-501	1	
395	10000-601-055	RINCH REOLER (R) ; 1851-10-501	1	
408	10000-268-108	MOTOR PULLEY (MA) ; 1851-14-31	1	
412	10000-502-011	MOTOR ; EG530YD9B	1	

9-3. CDP Deck exploded view & parts list

9-3-1. CDP deck exploded view(CMSA30AM6)

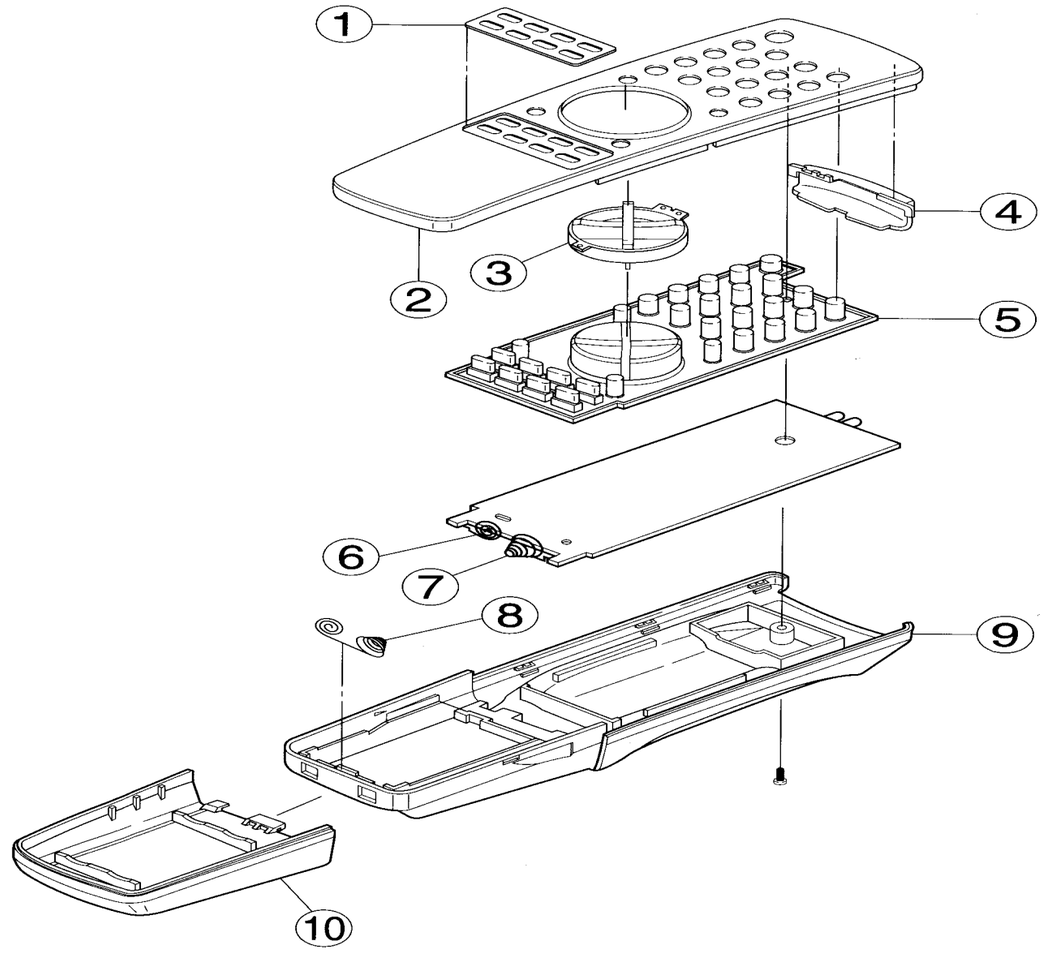


9-3-2. Parts list

No.	Code no.	Description	Specification	Q'TY	Remark
	CMSA30AM6	DECK-CD	CMS-A30AM6	1	
1	12201-0052-01	CHASSIS-DECK(M)	CMSA30 BLK POM M90-44	1	
2	13313-0057-00	COVER-GEAR	CMS-V30 BLK ABS	1	
3	11474-0017-00	GEAR(A)	CMS-V30 M0.3 Z13 SP POM	1	
4	11474-0018-00	GEAR(B)	CMS-V30 M0.3 Z14/Z82 SP POM	1	
5	11474-0019-00	GEAR(C)	CMS-V30 M0.3 Z16/Z90 SP POM	1	
6	11404-0041-00	SHAFT-PU	CMS-V30 D3 L79 SUS 420J2	1	
7	15253-503-010	CENTER-RING	ABS+GS 20%	1	
8	16034-504-510	CENTER-KNOB	ABS 94HB	1	
9	15253-503-520	TURN-TABLE(M)	ABS+GS 20%	1	
10	* SOH-A1	LASER PICK UP	CDP DECK CMS-A30 SOH-A1	1	
11	16674-559-410	SPRING-T/TABLE	CS STS-W PI0.4 D11.0 L11.0 CMS-V10	1	
12	14769-057-240	MOTOR-SPIN	RF-310T 38MM NDM4RA3NTLS 17.9MM	1	
13	14769-057-250	MOTOR-FEED	RF-310TA 30MM NDM4RA3ETL 11.0MM	1	
14	17008-120-032	SCREW-PH	+M2×3 FE FZY W700	2	
15	16024-0262-01	P.C.B - SUB	CMS-V34A T1.6 W163 L247 1V-0 CD DECK	1	
16	13349-139-061	CONNECTOR-WAFER	53015-0610 2.0MM	1	
17	13564-601-100	SWITCH-LEAF	MSW-1731CVC	1	

9-4. Remote control

9-4-1. Explode view

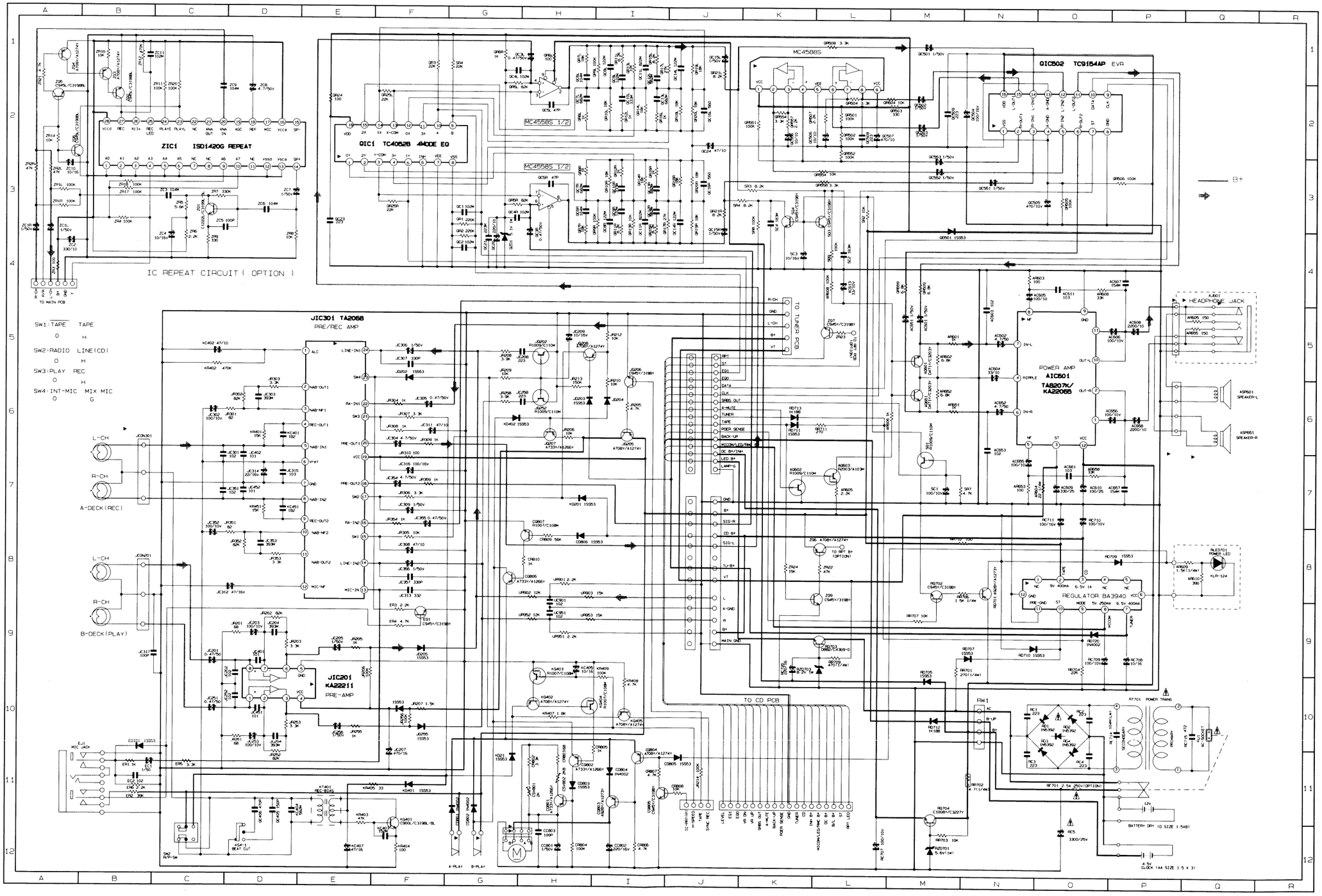


10-4-2. Parts list

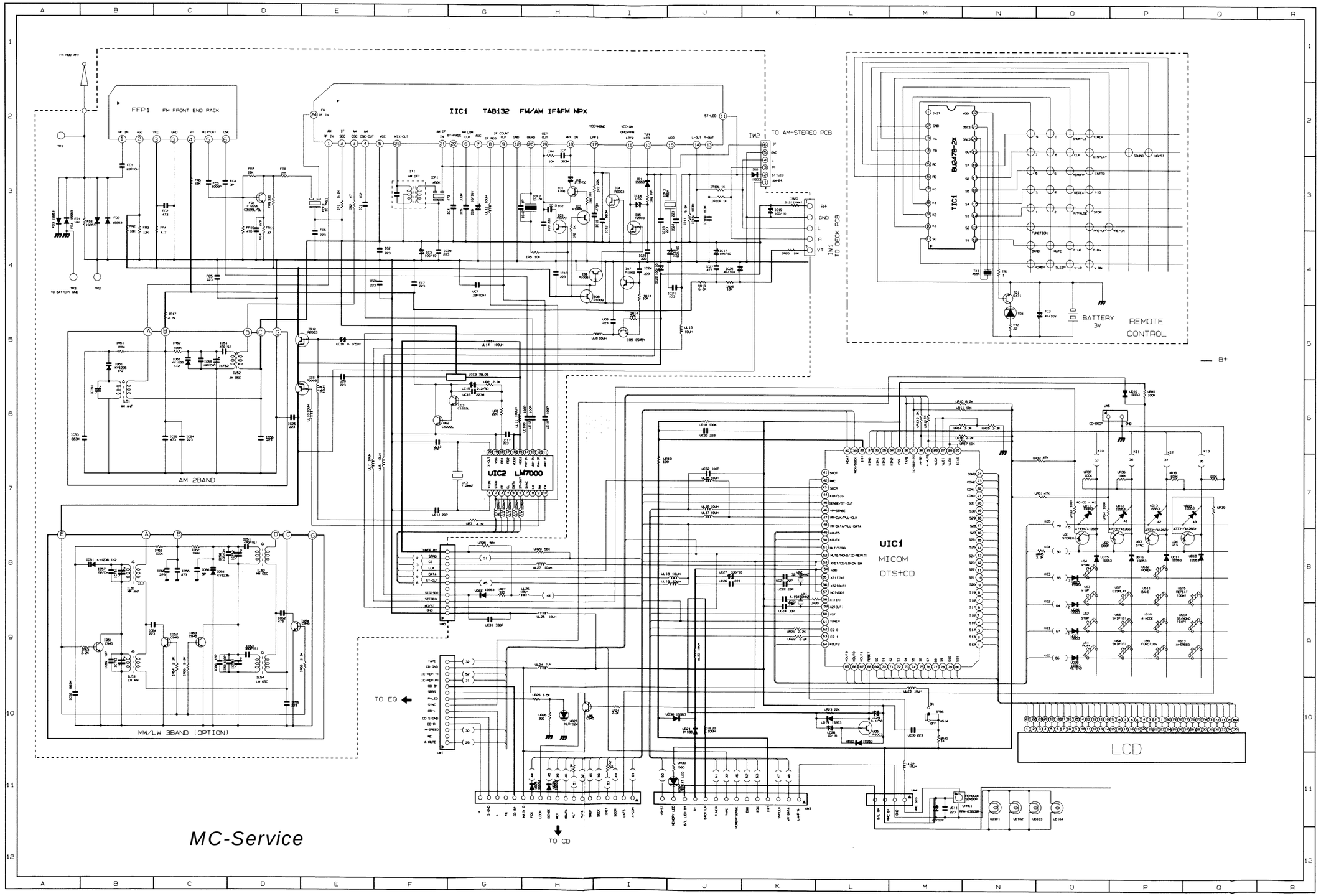
No.	Code no.	Description	Specification	Q'TY	Remark
	19239-0039-01	ASS'Y REMOCON	RCD-1650/EXP	1	
1	14014-0028-00	INLAY-REMOCON	RCD-1650/EXP T0.5 PC	1	
2	12001-0248-00	CABINET-TOP	RCD-1650/EXP REMOCON ABS 94HB	1	
3	13353-0043-00	GUIDE-KNOB	MQ-555 REMOCON ABS 94HB	1	
4	14073-0235-00	WINDOW-REMOCON	RCD1650/EXP PC	1	
5	14082-0642-00	KNOB-RUBBER	RCD1650/EXP REMOCON SILICON	1	
6	12724-0189-00	SPRING-A(+)	MM-77 STS PI0.6 CD NI-CO	1	
7	12724-0190-00	SPRING-B(-)	MM-77 STS PI0.6 CS NI-CO	1	
8	12724-0191-00	SPRING-C	MM-77 STS304 PI0.6 CS	1	
9	12001-0249-00	CABINET-BOTTOM	RCD1650/EXP REMOCON ABS 94HB	1	
10	14043-0126-00	DOOR-BATTERY	RCD1650/EXP REMOCON ABS 94HB	1	
	12149-401-150	TRANSISTOR	KSD 471-Y,TAPE	1	
	14539-504-030	CERAMIC-RESONATOR	CSB4545EBL	1	
	B4002-0601	IC-LINEAR	BU2478-2X REMOCON SOP	1	

10. Schematic diagram

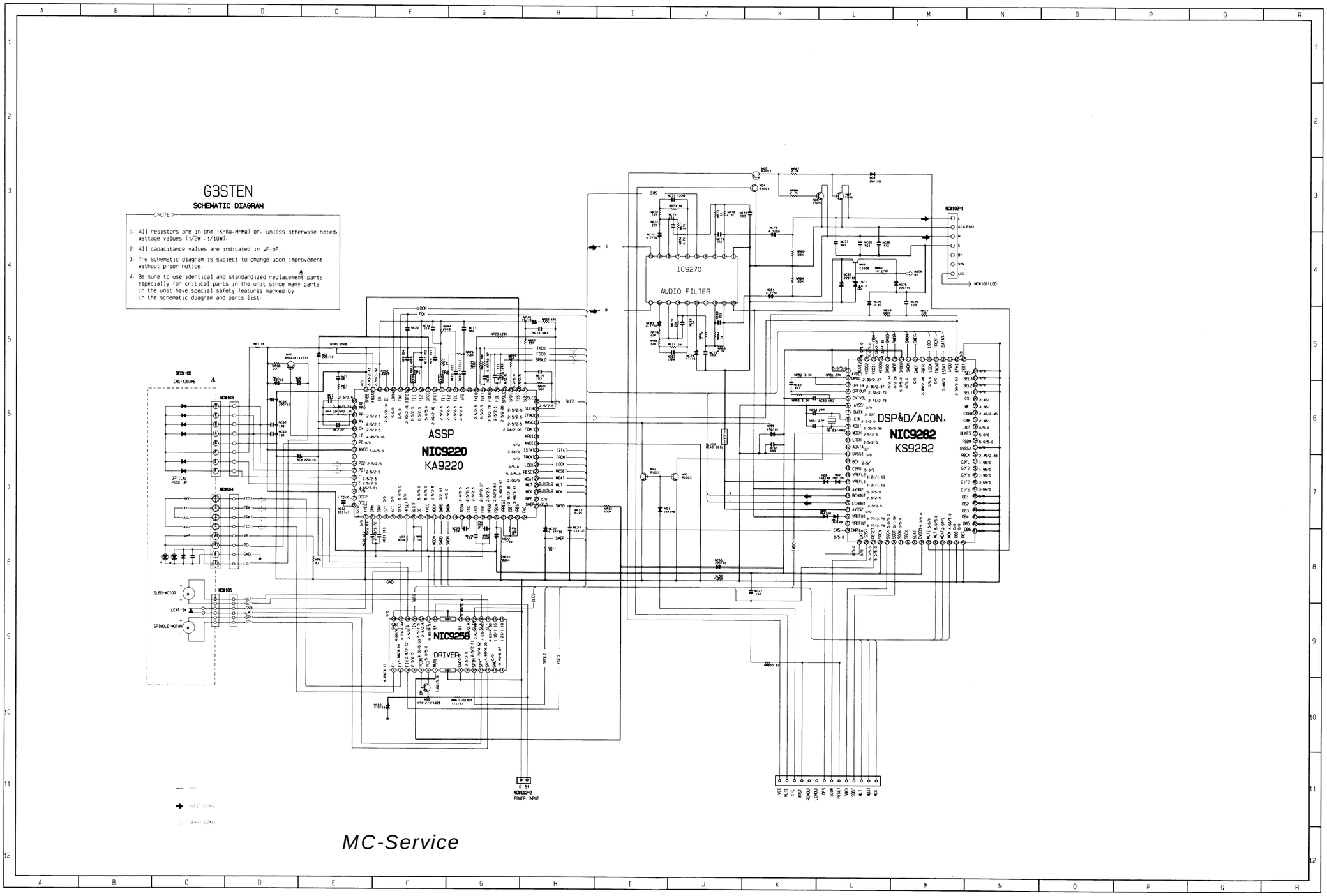
10-1. Main section



10-2. Front section



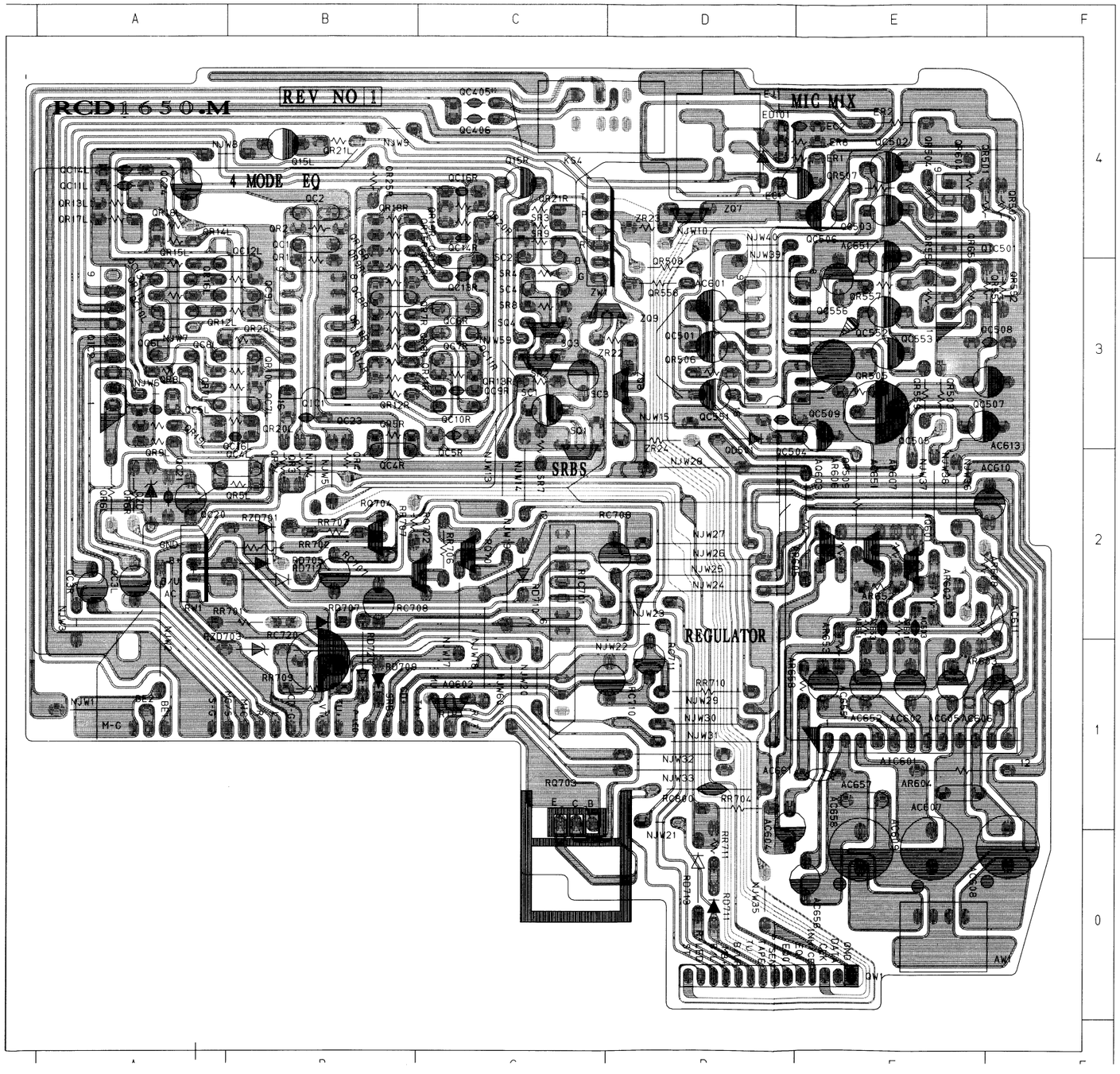
10-3. CD section



MC-Service

11. PCB Pattern and Marking diagram

11-1. Main section



*** DIODE ***

ED101 (D4)
QD501 (D3)
QZD1 (A2)
RD705 (B2)
RD707 (B2)
RD709 (B1)
RD710 (C2)
RD711 (D0)
RD712 (B2)
RD713 (D0)
RD720 (B1)
RZD701 (B2)
RZD703 (B1)

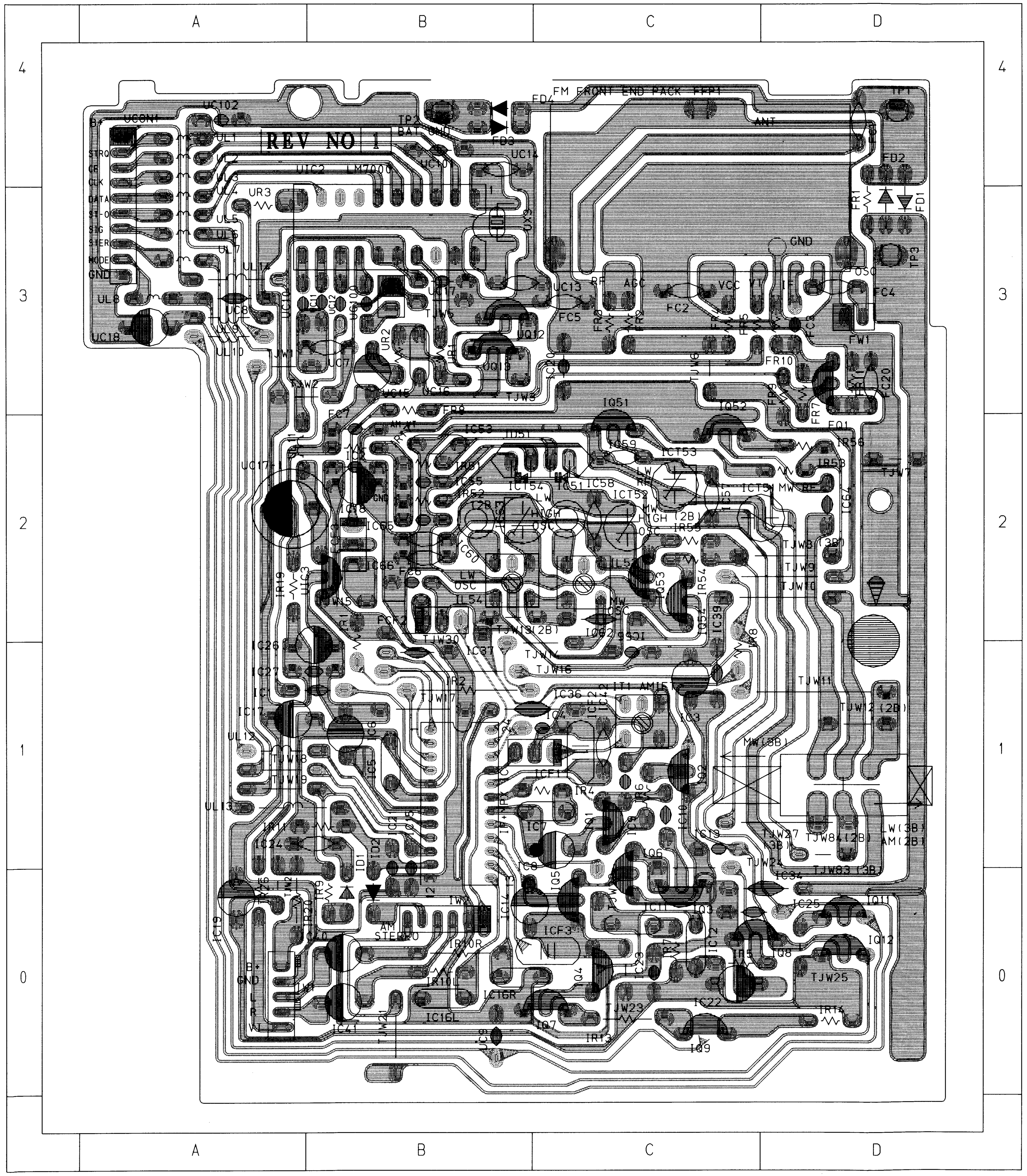
*** TR ***

AQ601 (E2)
AQ602 (C1)
AQ603 (E2)
AQ651 (E2)
RQ701 (C2)
RQ702 (C2)
RQ704 (B2)
SQ1 (C3)
SQ3 (C3)
SQ4 (C3)
ZQ7 (D4)
ZQ8 (D3)
ZQ9 (C3)

*** IC&WAFER ***

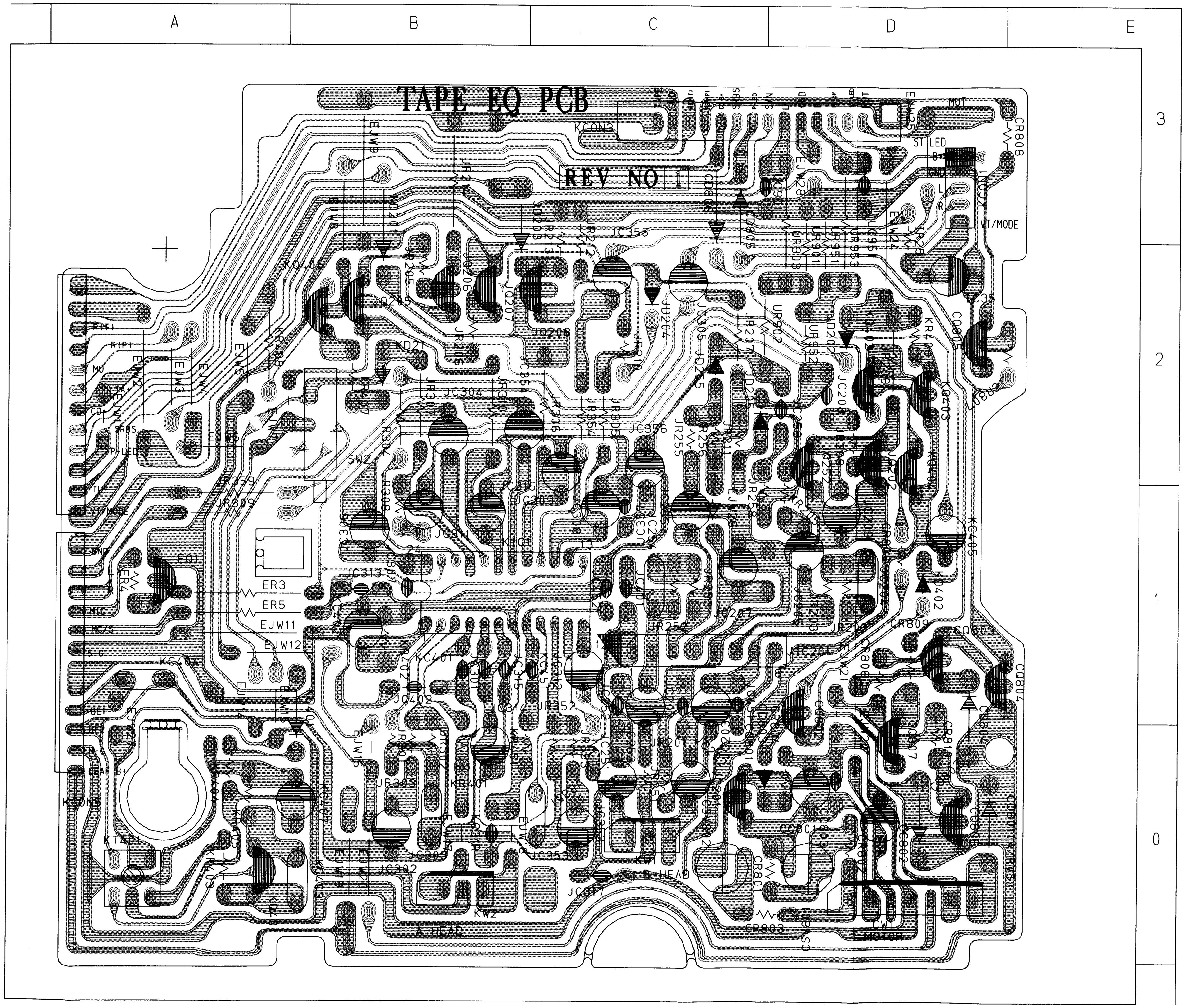
AIC601 (E1)
QIC2 (A3)
QIC501 (E4)
QW1 (D0)
RW1 (A2)
ZW1 (C4)

11-2. Tuner section


A
B
C
D
4
3
2
1
0
REV NO 1
UCON1
B+
STRQ
CE
CLK
DATA
ST-O
SIG
STER
MODE
GND
UC102
UIC2 LM7000
UR3
TP2
BAT
GND
FD3
FD4
FM FRONT END PACK FFP1
ANT
TP1
FD2
FR1
FD1
GND
TP3
RF
AGC
VCC
VT
IF
OSC
FC4
FC2
FC5
FW1
FR10
FC20
FQ1
UC13
UQ12
UQ13
IQ51
IQ52
IQ53
IQ54
IQ59
ICT53
ICT54
ICT52
ICT51
IC58
IC53
IC55
IR52
IR54
IR55
IR56
IR58
IC60
IC65
IC66
IC67
IL54
LW OSC
MW OSC
HIGH OSC
TJW8 (3B)
TJW9
TJW10
TJW11
TJW12 (2B)
TJW13 (2B)
TJW16
TJW17
TJW30
IT1 AMIFT
IC36
ICF1
ICF2
ICF3
IR4
IQ1
IQ2
IQ3
IQ4
IQ5
IQ6
IQ7
IQ8
IQ9
IQ11
IQ12
MW (3B)
LW (3B)
AM (2B)
TJW27 (3B)
TJW84 (2B)
TJW83 (3B)
TJW24
TJW25
TJW23
IC25
IC34
IC22
IR13
IR14
IC16L
IC16R
IR10L
IR10R
AM STEREO
IC41
TJW21
IC19
ID1
ID2
IR9
IR11
IC24
UL12
UL13
TJW18
TJW19
IC17
IC26
IC27
IR19
UIC3
UC17
UC18
UL8
UL9
UL10
UL14
UC8
B+
GND
L
R
VL

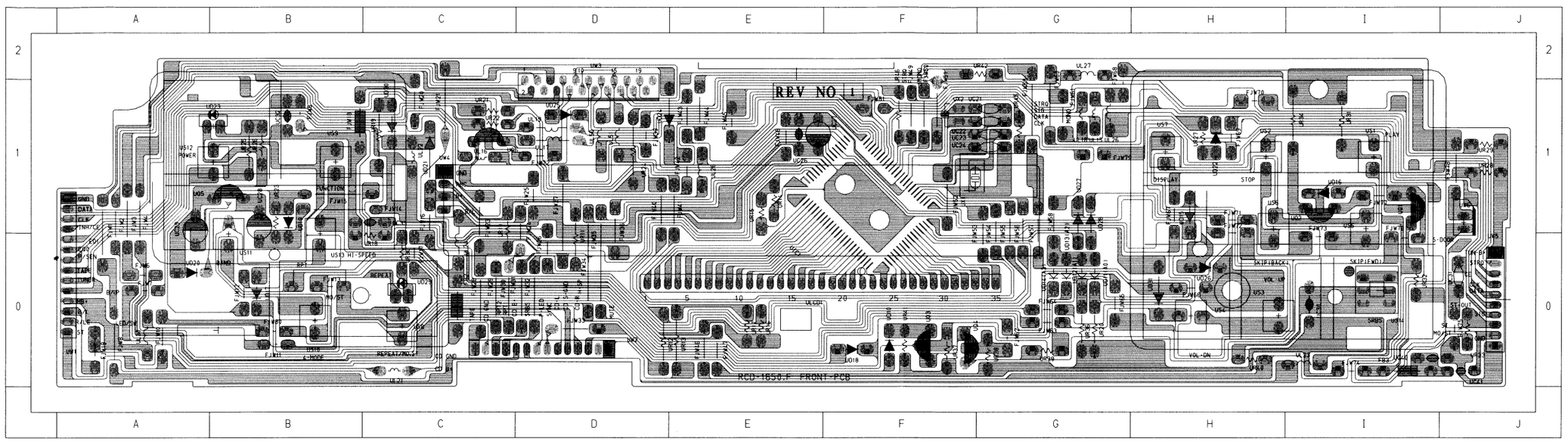
*** DIODE ***	*** TR ***	*** IC&WAFER ***
FD1 (D3)	FQ1 (D3)	FW1 (D3)
FD2 (D4)	IQ1 (C1)	IW1 (A0)
FD3 (B4)	IQ11 (D0)	IW2 (B0)
FD4 (B4)	IQ12 (D0)	UCON1 (A3)
ID1 (B0)	IQ2 (C1)	UIC2 (B3)
ID2 (B0)	IQ3 (C0)	
	IQ4 (C0)	
	IQ5 (C0)	
	IQ51 (C2)	
	IQ52 (C2)	
	IQ53 (C2)	
	IQ54 (C2)	
	IQ6 (C0)	
	IQ7 (B0)	
	IQ8 (C0)	
	IQ9 (C0)	
	UIC3 (B2)	
	UQ12 (B3)	
	UQ13 (B3)	

11-3. EQ section



*** DIODE ***	*** TR ***	*** IC&WAFER **
CD801 (D0)	CQ801 (C0)	CW1 (D0)
CD802 (D0)	CQ802 (D0)	JIC201 (C1)
CD803 (D0)	CQ803 (D1)	KCON1 (D3)
CD804 (D1)	CQ804 (E1)	KW1 (C0)
CD805 (C3)	CQ805 (D2)	KW2 (B0)
CD806 (C2)	CQ806 (D0)	
EJW26 (C1)	CQ807 (D0)	
JD202 (D2)	EQ1 (A1)	
JD203 (B2)	JQ202 (D2)	
JD204 (C2)	JQ205 (B2)	
JD205 (C2)	JQ206 (B2)	
JD255 (C2)	JQ207 (B2)	
KD201 (B2)	JQ208 (C2)	
KD21 (B2)	JQ252 (D1)	
KD401 (B0)	KQ401 (A0)	
KD402 (D1)	KQ402 (D2)	
	KQ403 (D2)	
	KQ404 (D1)	
	KQ405 (B2)	

11-4. Front setion



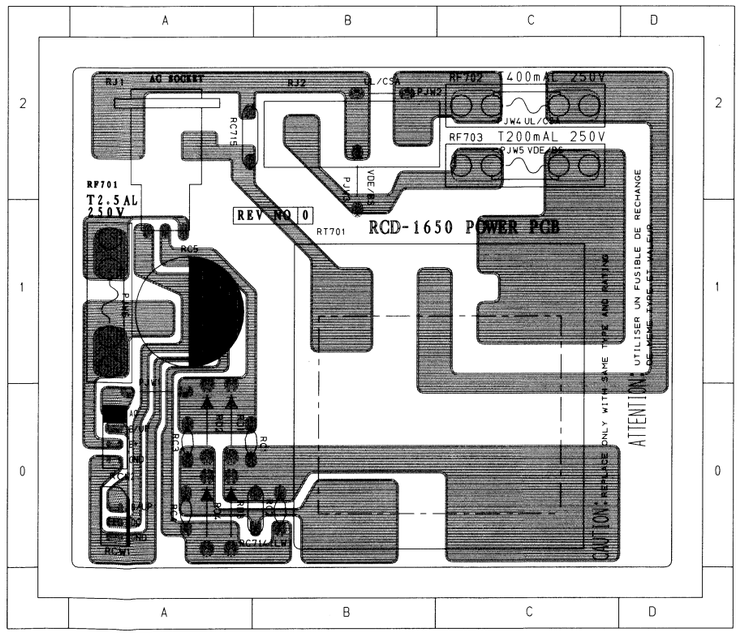
*** DIODE ***

UD10 (F0)
UD11(A0) (G0)
UD12(A1) (G0)
UD13(A2) (G0)
UD14(A3) (G0)
UD15 (H0)
UD16 (I1)
UD17 (B0)
UD18 (F0)
UD19 (B0)
UD20 (A0)
UD21 (C1)
UD22 (H1)
UD24 (D1)
UD25 (D1)
UD26 (H0)
UD27 (G1)
UD28 (G1)
UD30 (C1)
UD31 (H0)

*** TR ***

UQ1 (I1)
UQ2 (I1)
UQ3 (F0)
UQ4 (F0)
UQ5 (B1)
UQ6 (C1)

11-5. Power setion



*** DIODE ***

RD1 (A1)
RD2 (A1)
RD3 (A0)
RD4 (A0)

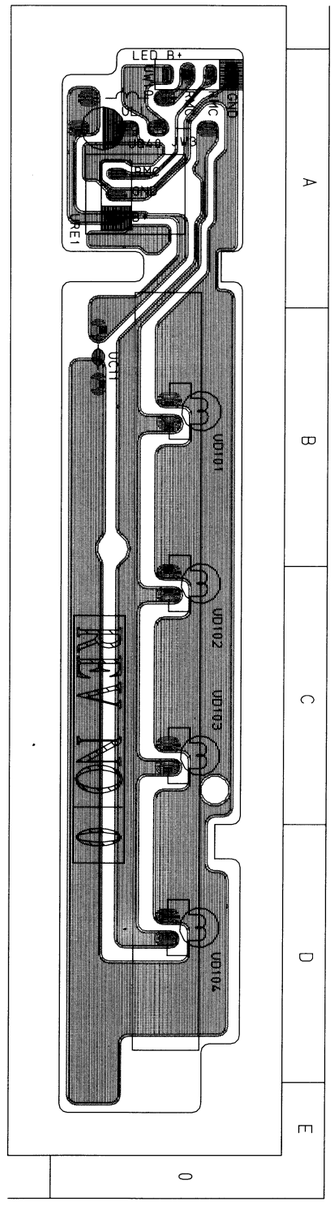
*** TR

*** IC&WAFER ***

RCW1 (A0)
RCW2 (A0)

MC-Service

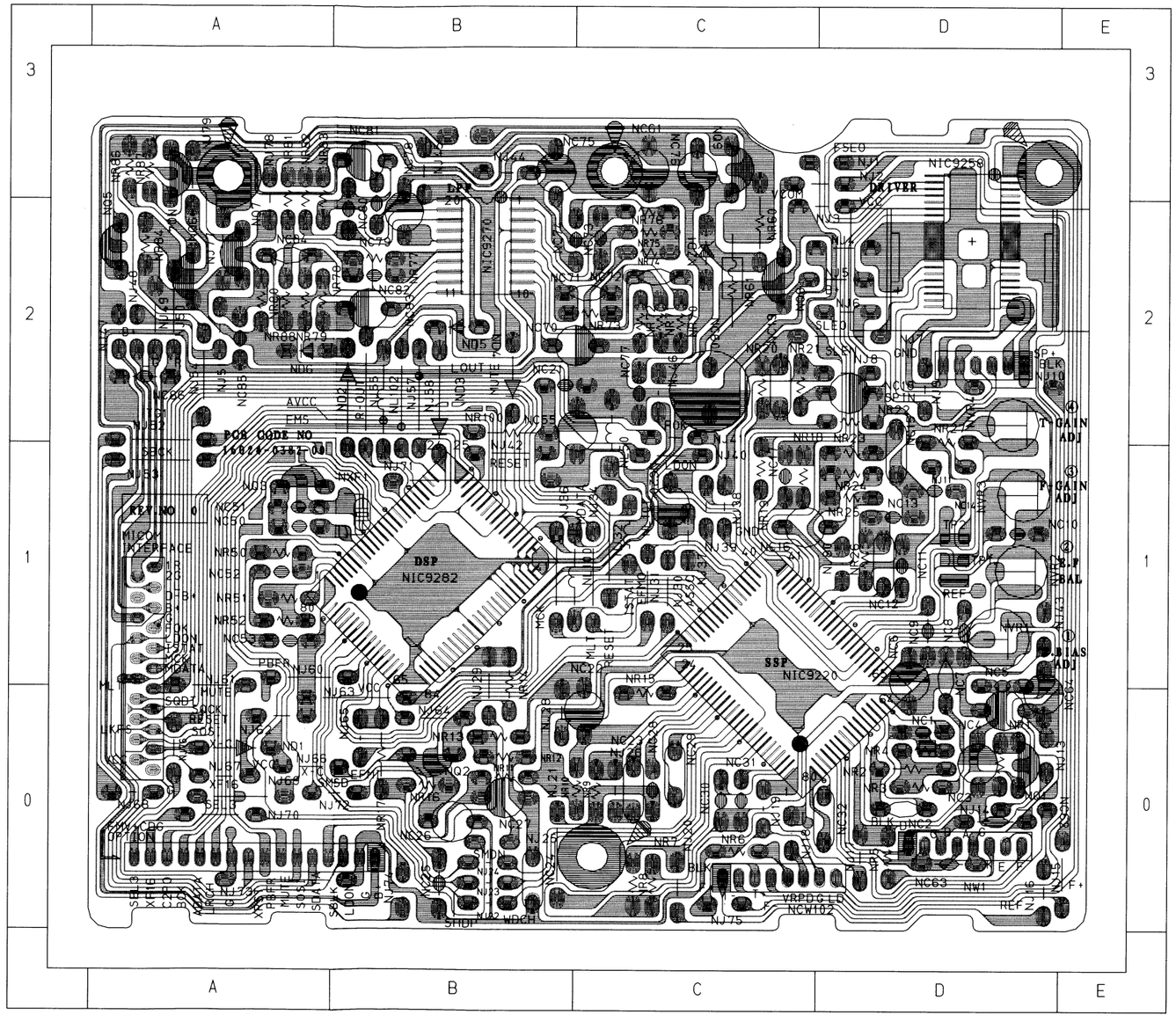
11-6. Control section



*** IC&WAFER ***

URE1 (A0)
UW10 (A0)

11-7. CD section



*** DIODE ***

ND1 (A0)
ND2 (B2)
ND3 (B1)
ND4 (B2)
ND5 (B2)
ND6 (A2)
NZD1 (C2)

*** TR ***

NQ1 (D0)
NQ2 (B0)
NQ3 (A1)
NQ4 (A3)
NQ5 (A2)
NQ6 (A2)
NQ7 (A2)
NQ8 (C2)
NQ9 (C3)

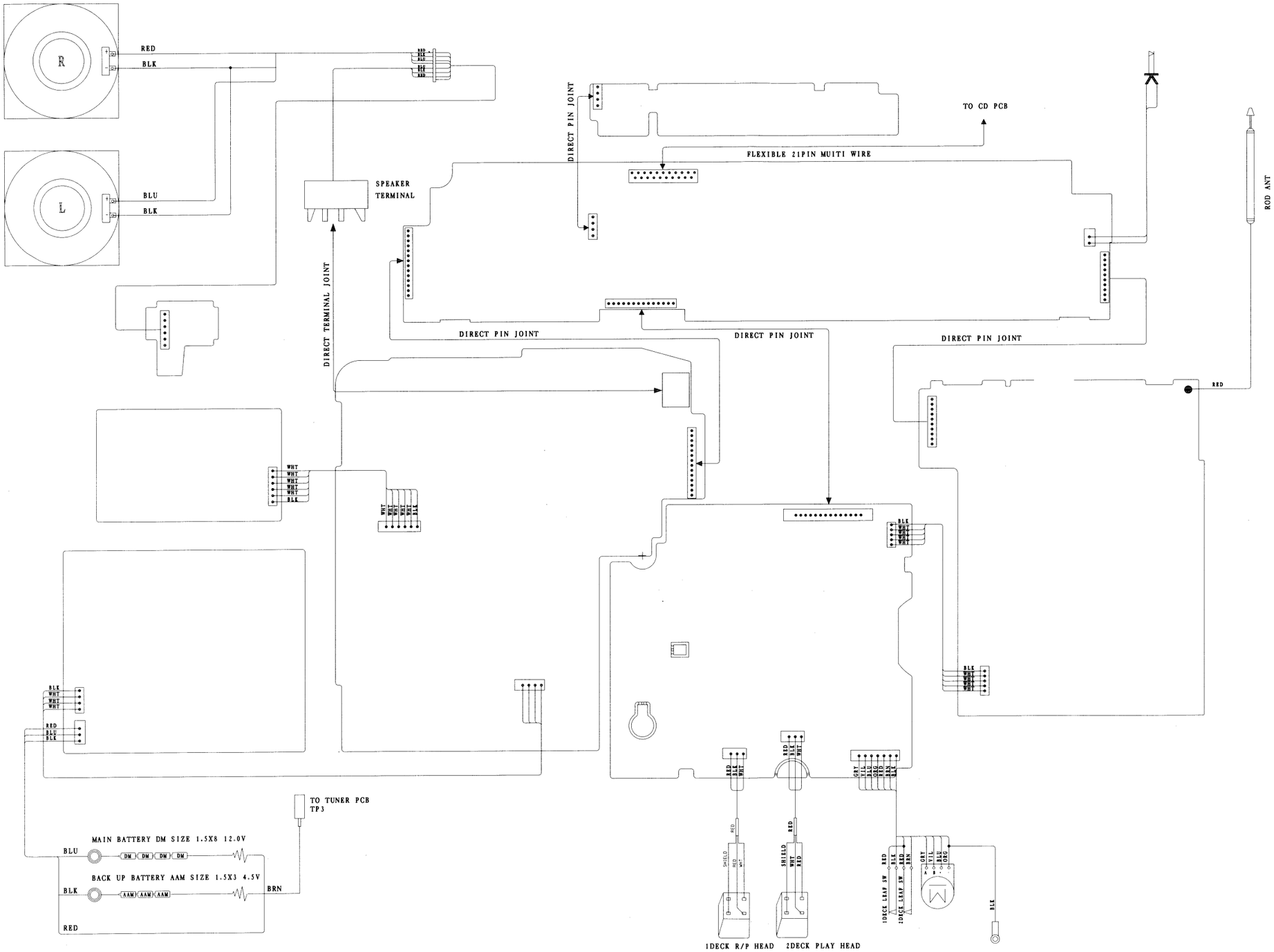
*** IC&WAFER ***

NCW102 (C0)
NW1 (D0)

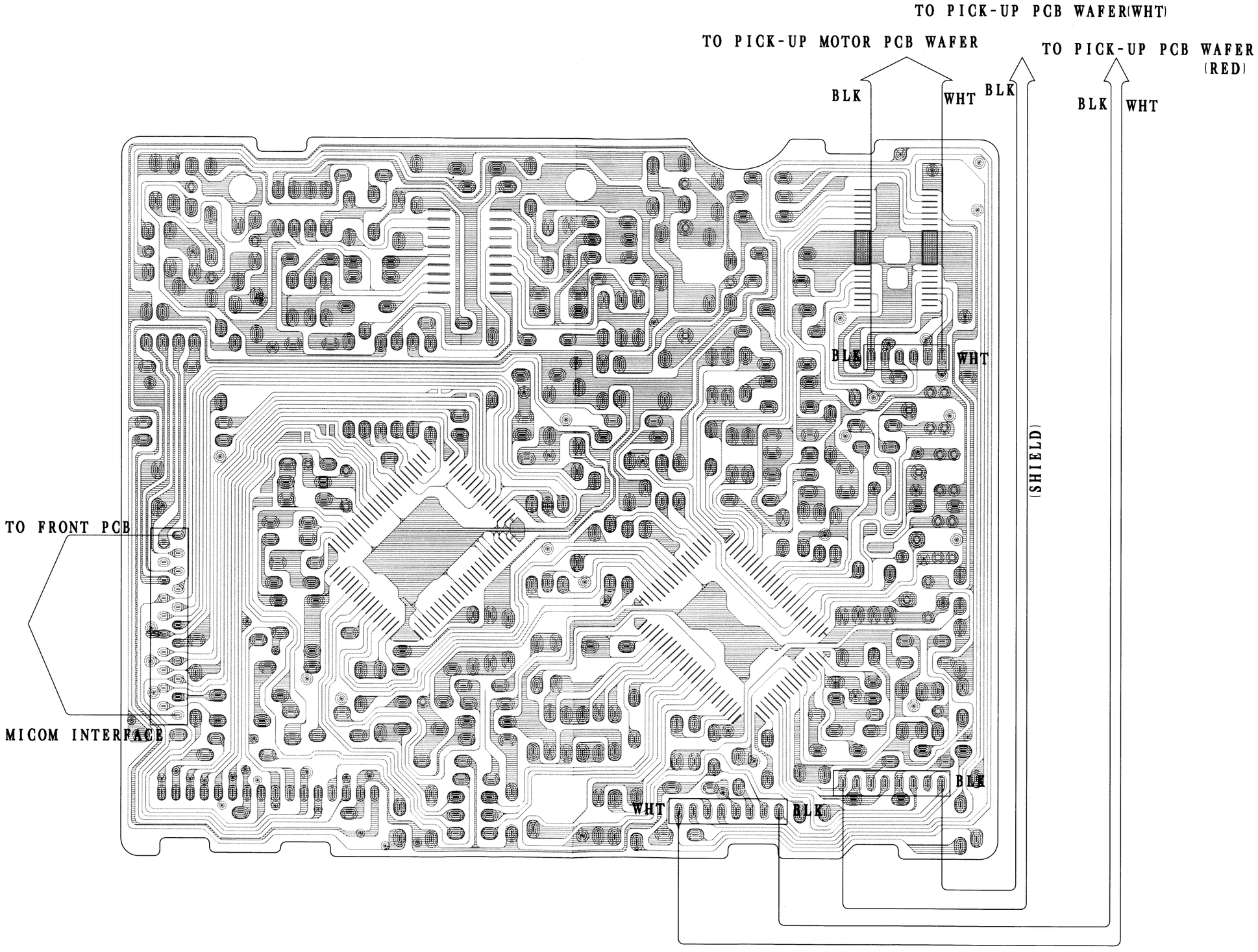
MC-Service

12. Wiring diagram

12-1. Main section



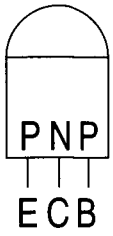
12-2. CD section



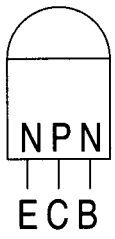
13. IC & TR internal diagram

13-1. Main section

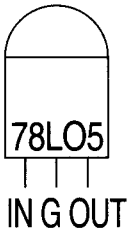
● TR

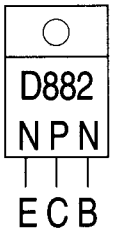


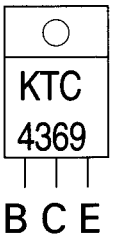
KSR2003/KRA103M
KSA708C-Y/KTA1274-Y
KSA733C-Y/KTA1266-Y
KSA928A-Y/KTA1273-Y



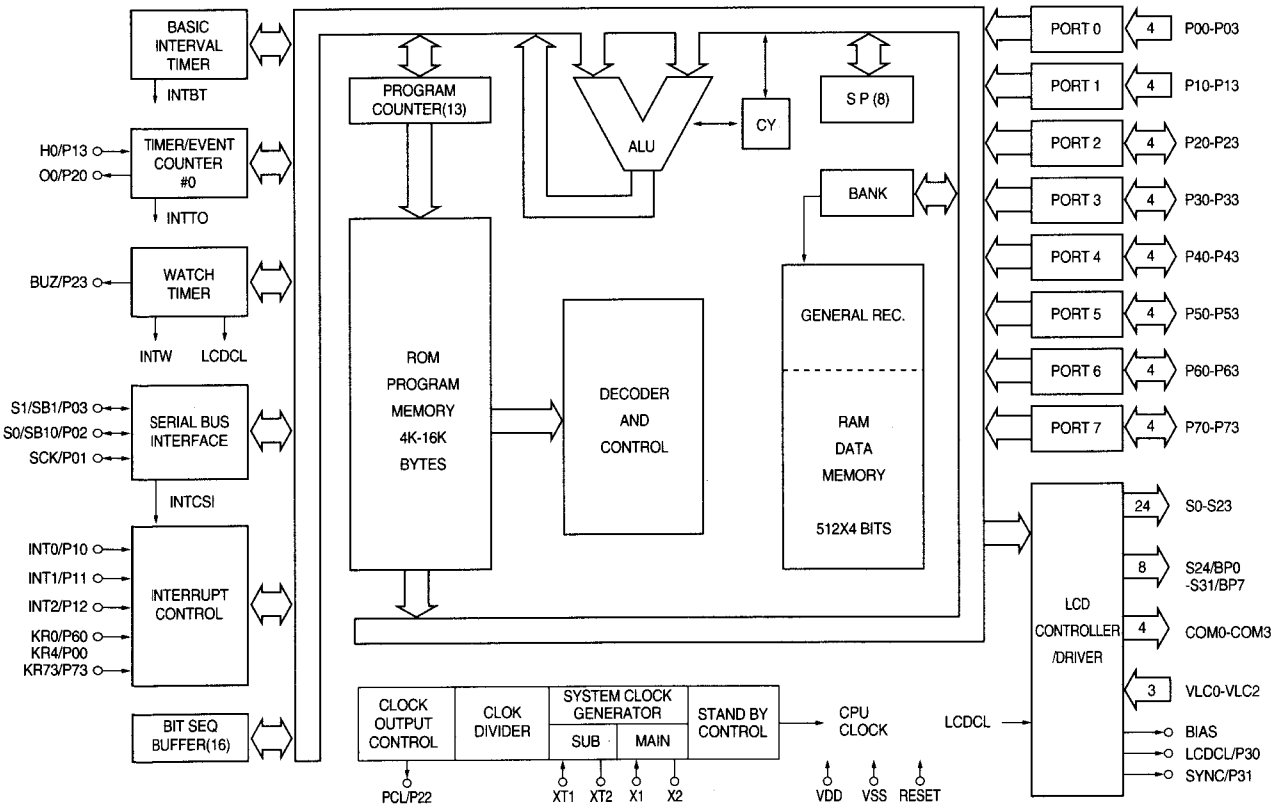
KSR1009/KRC110M
KSR1007/KRC108M
KSC945C-Y/KTC3198-Y
KSC122C-L/KTC3199L-BL
KSD471C-Y/KTC3203-Y
KSC900C-L/KTC3198L-BL
KSC10008C-Y/KTC3227-Y



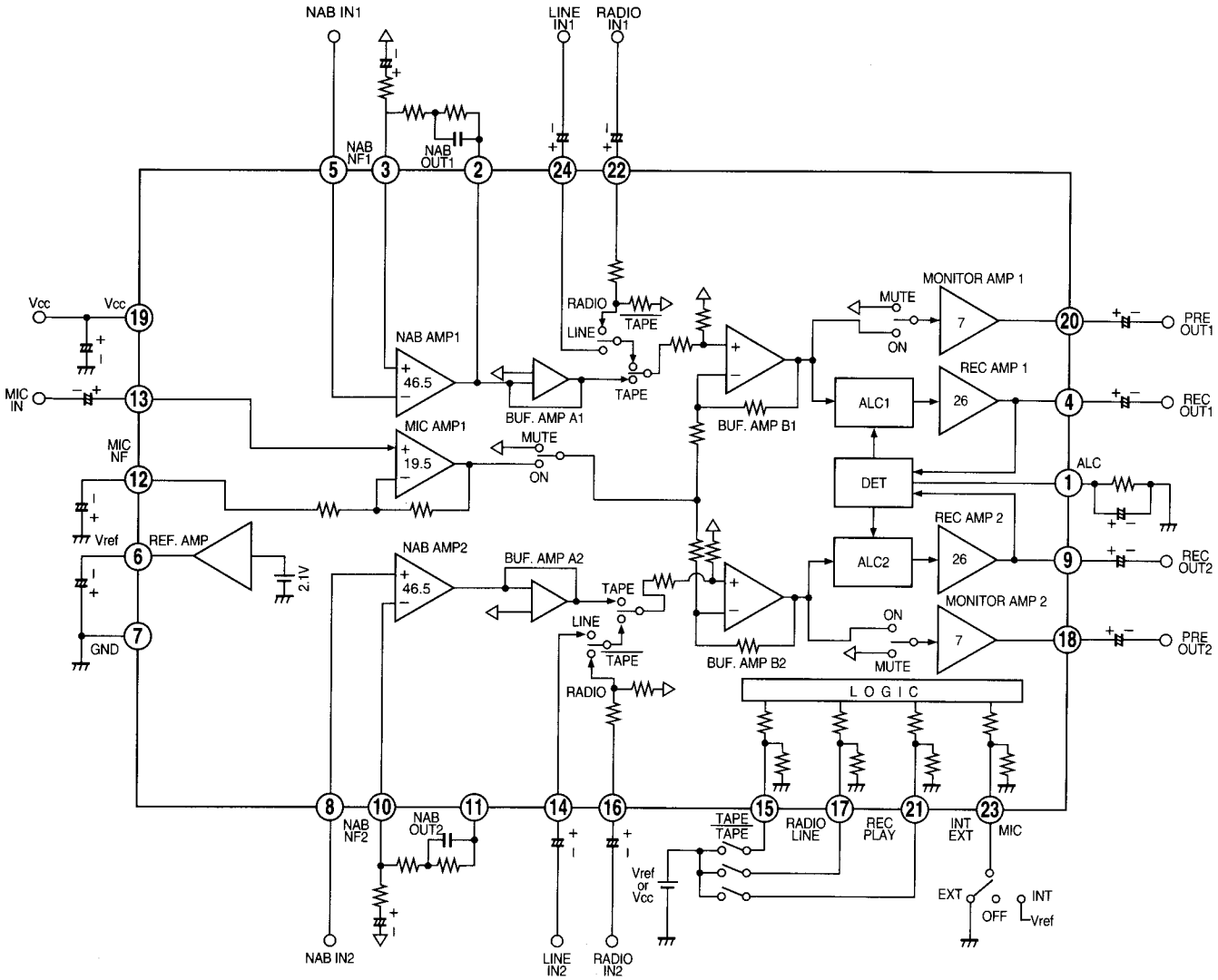




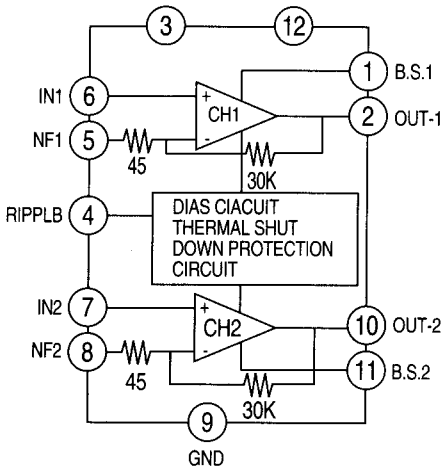
● UPD75316GF-551-3B9 : UIC01



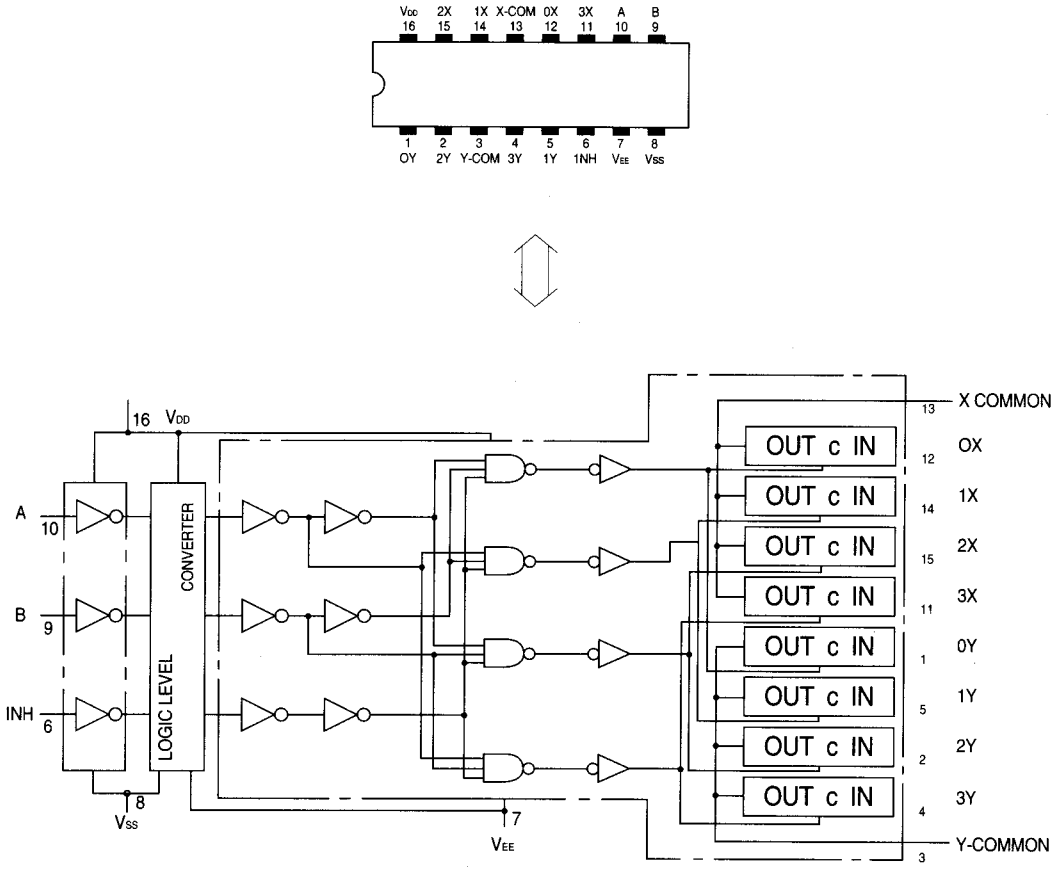
● TA2068N : KIC1



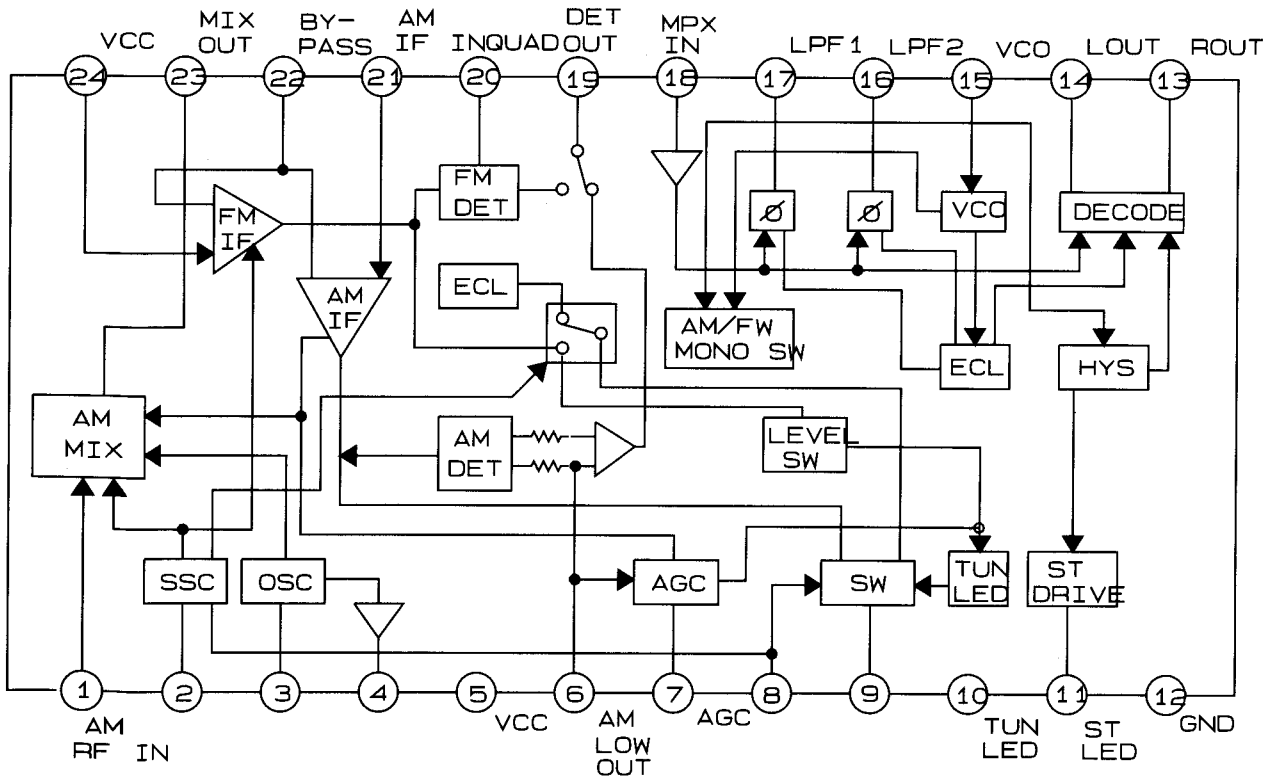
● TA8207K/KA22065 : AIC601



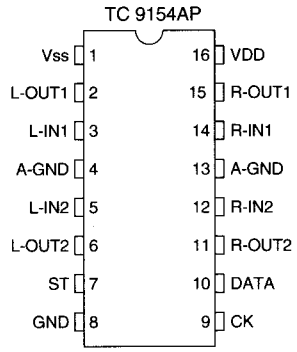
● TC4052 BP : QIC1

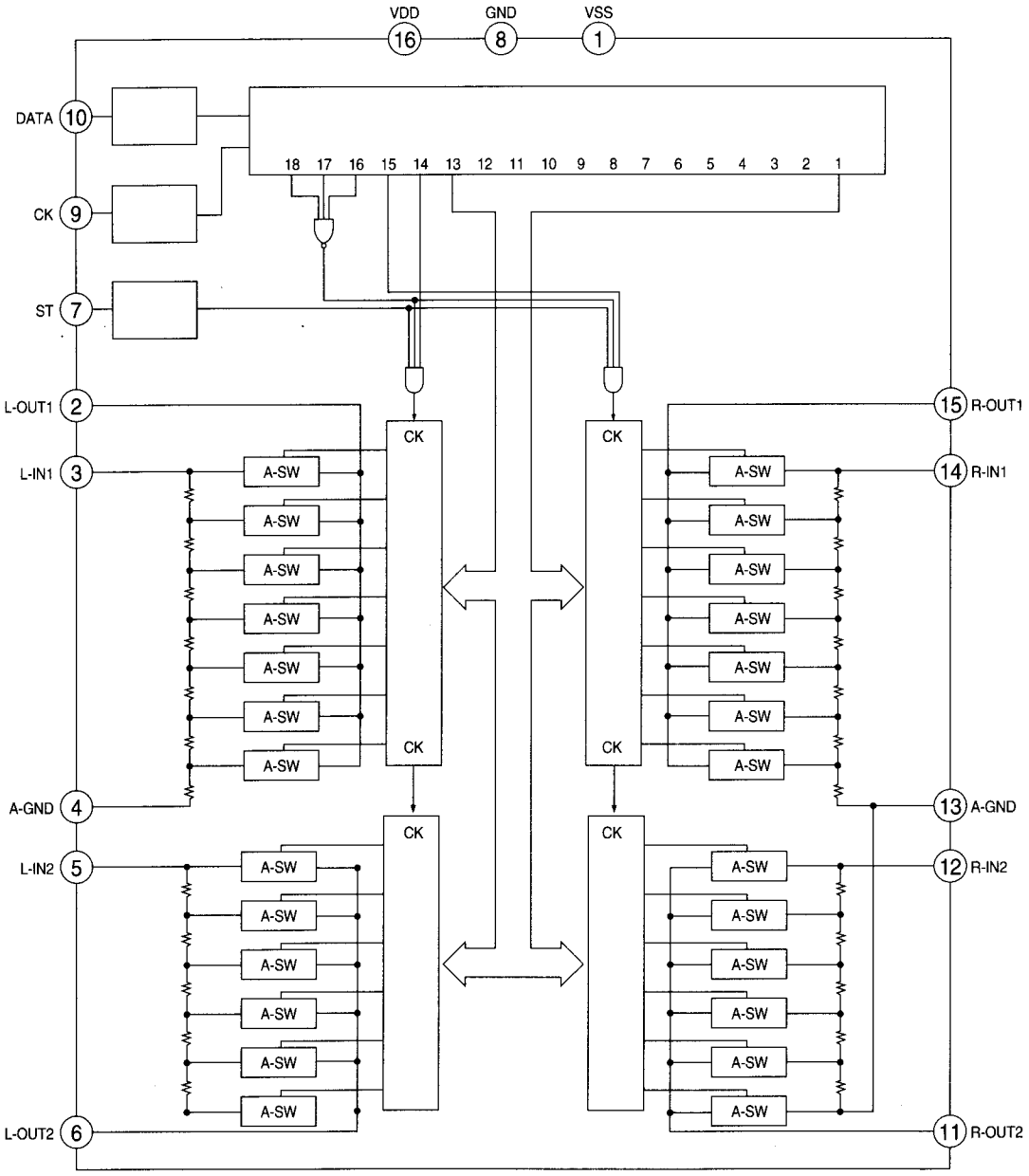


● TA8132N : IIC1

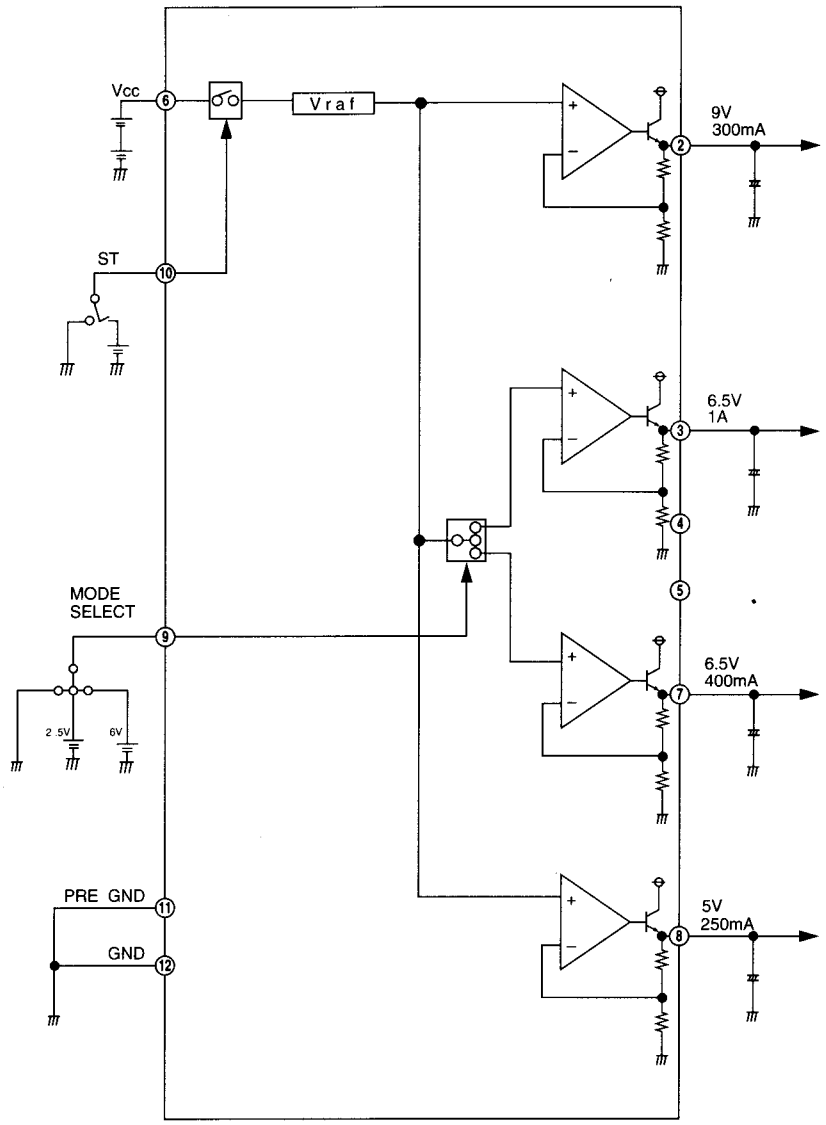


● TC 9154AP (VR IC) : EIC1

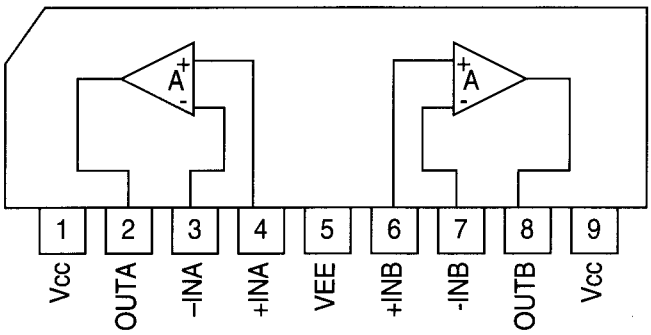




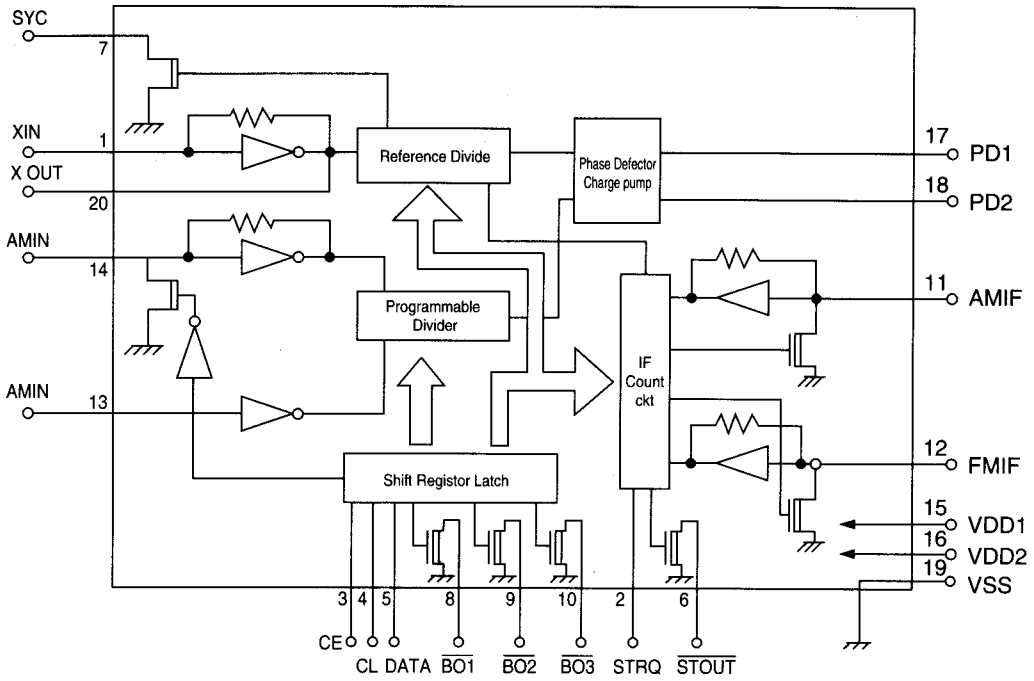
● BA3940 ; RIC701



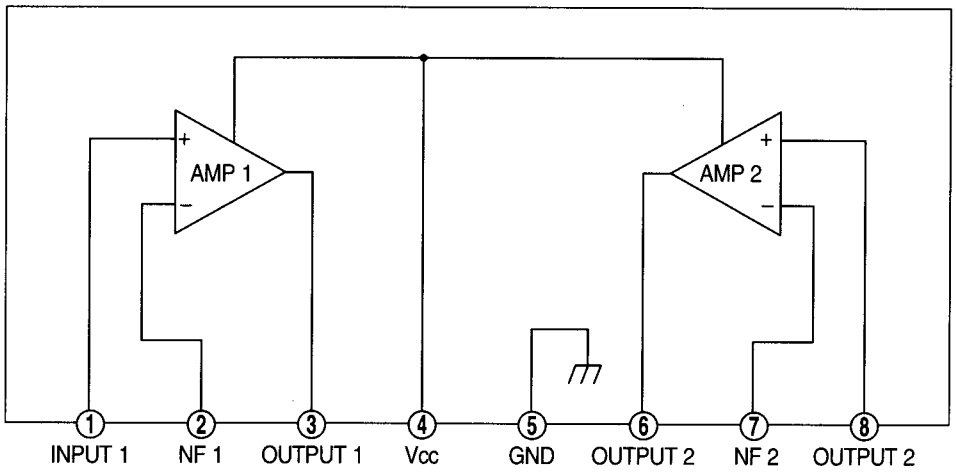
● MC4558S/KA4558S : QIC501,502



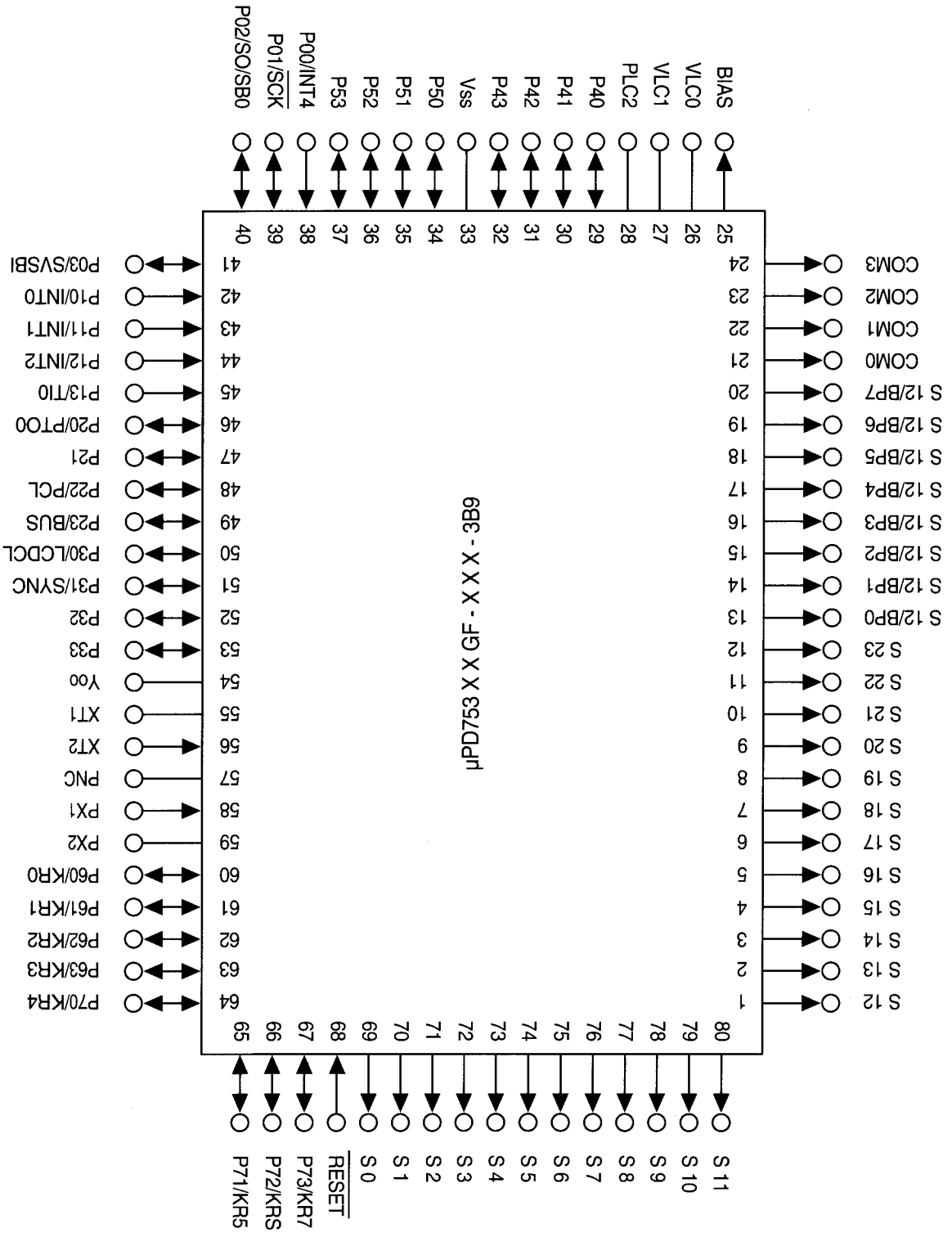
● LM 7000 : UIC2



● KA22211: KIC1

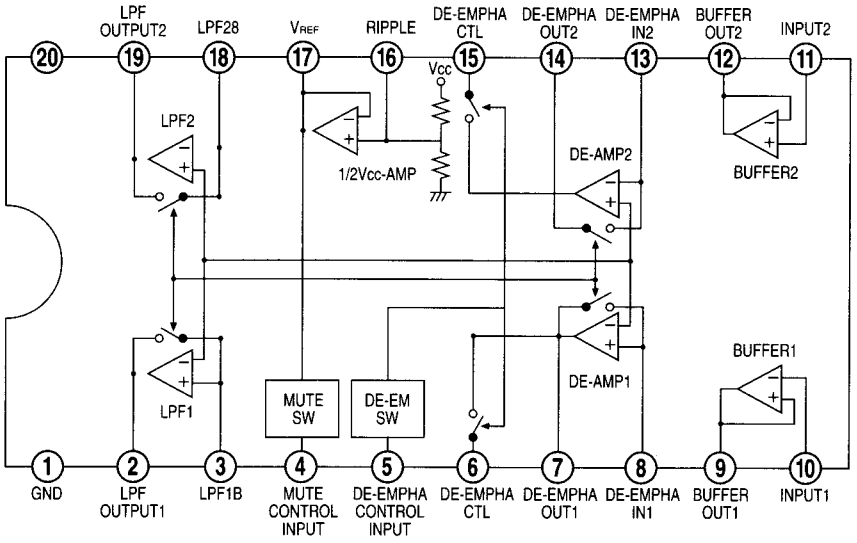


● UIC1(μPD 75316)

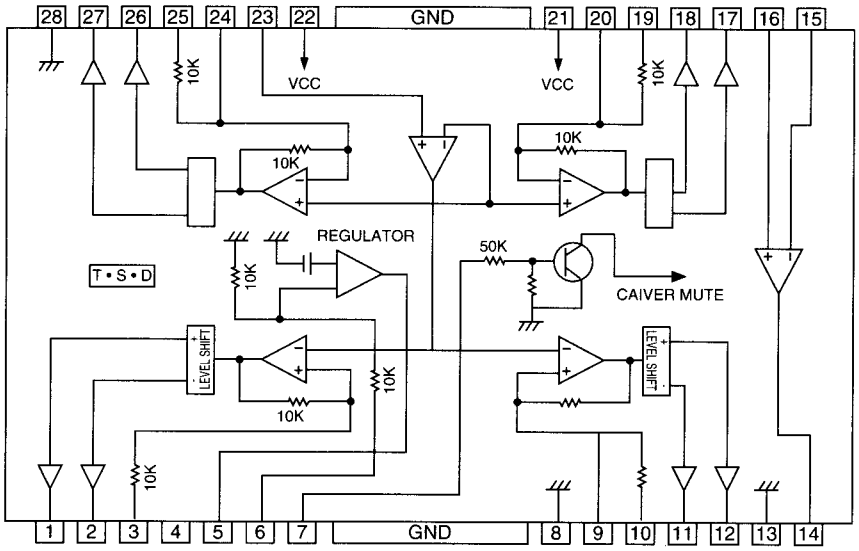


13-2. CD section

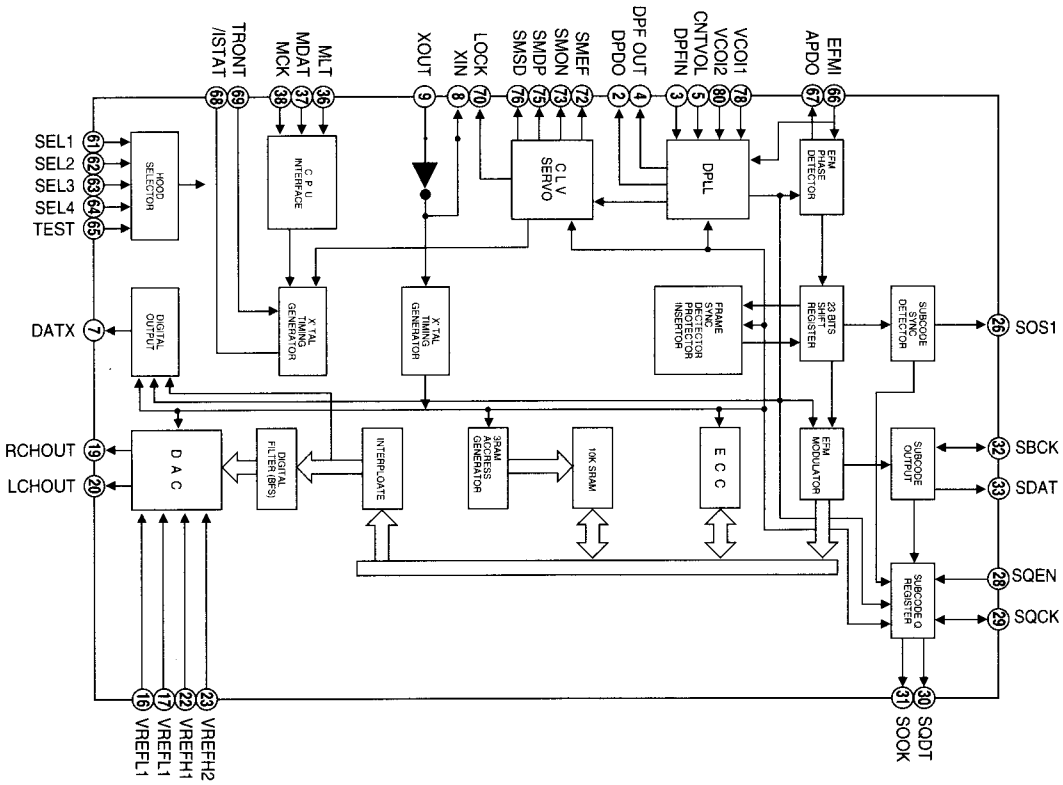
● KA9270 :NIC9270



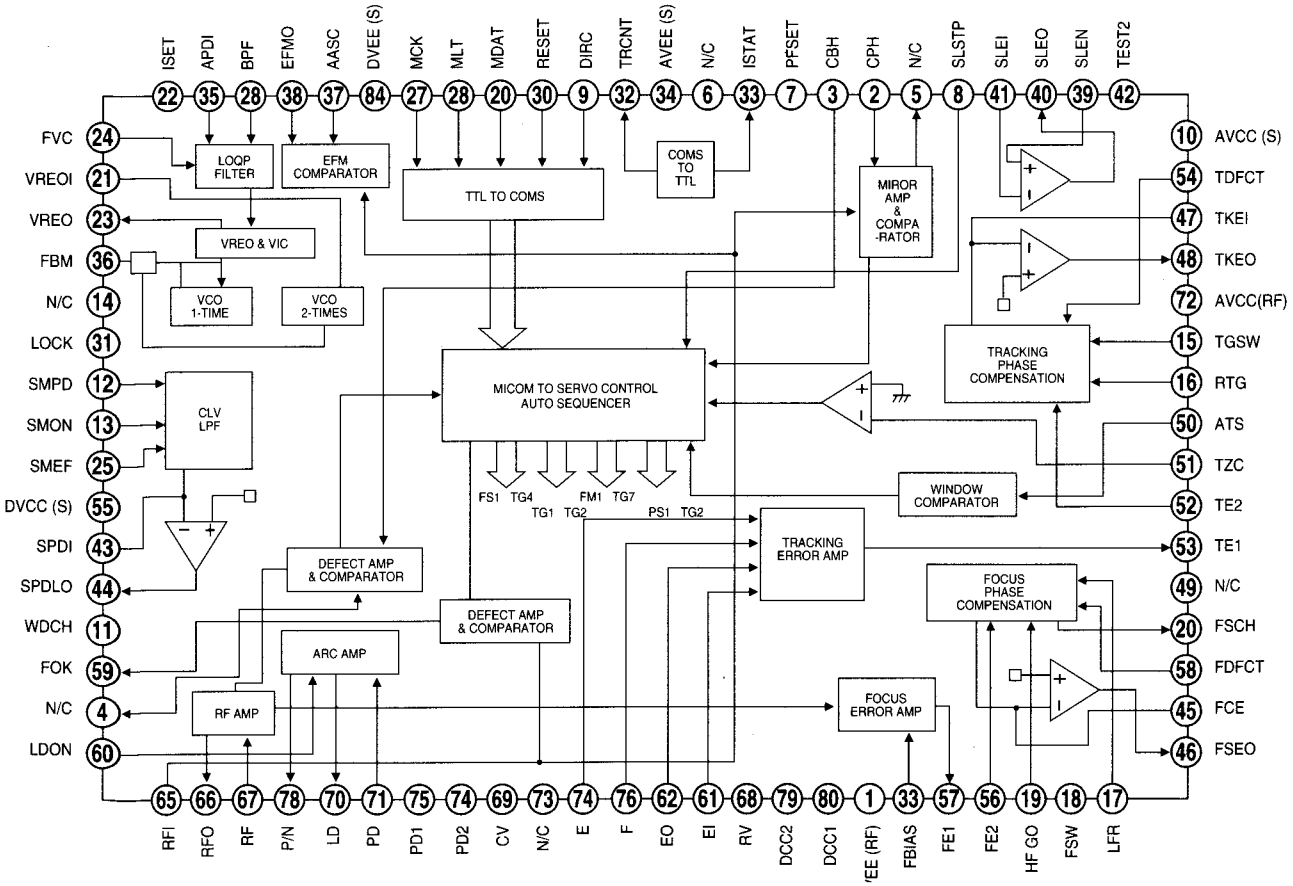
● KA9258 : NIC9258



● KS9282: NIC9282



● KA9220 : NIC9220


ISET APDI BPF EFMO AASC DVEE (S) MCK MLT MDAT RESET DIRC TRONT AVEE (S) N/C ISTAT PFSET CBH CPH N/C SLSTP SLEI SLEO SLEN TEST2
FVC VREOI VREO FBM N/C LOCK SMPD SMON SMEF DVCC (S) SPDI SPDLO WDCH FOK N/C LDON
AVCC (S) TDFCT TKEI TKEO AVCC(RF) TGSW RTG ATS TZC TE2 TE1 N/C FSCH FDFCT FCE FSEO
LOOP FILTER
EFM COMPARATOR
TTL TO COMS
COMS TO TTL
MIROR AMP & COMPA -RATOR
VREO & VIC
VCO 1-TIME
VCO 2-TIMES
CLV LPF
MICOM TO SERVO CONTROL AUTO SEQUENCER
TRACKING PHASE COMPENSATION
WINDOW COMPARATOR
TRACKING ERROR AMP
DEFECT AMP & COMPARATOR
DEFECT AMP & COMPARATOR
ARC AMP
RF AMP
FOCUS PHASE COMPENSATION
FOCUS ERROR AMP
FS1 TG4 FM1 TG7
TG1 TG2 PS1 TG2
RFI RFO RF P/N LD PD PD1 PD2 CV N/C E F EO EI RV DCC2 DCC1 VEE (RF) FBIAS FE1 FE2 HF GO FSW LFR

14. Electrical parts list

14-1. Tuner section

14-1-1. Parts list

⚠ Static electricity

⚠ indicates parts for circuit safeguarding purposes. Therefore, when replacing, be sure to use specified parts only.

Location no.	Code no.	Description & Specfication	Q'ty	Remark
IR20	11018-277-229	R-CARBON;RD 1/4T 2.2-J	1	
IC42	11407-052-109	C-CERAMIC;CC45T CH50 1-C	1	
FC4	11407-052-309	C-CERAMIC;CC45T CH 50V 3-C	1	
IC58	11407-057-100	C-CERAMIC;CC45T CH 50V 10-J	1	
IC60	11407-057-121	C-CERAMIC;CH120-J	1	
IC66	11407-057-150	C-CERAMIC;CC45T CH 50V 15-J	1	
UC13,14	11407-057-200	C-CERAMIC;CC45T CH 50V 20-J	2	
FC1	11407-057-220	C-CERAMIC;CC45T CH 50V 22-J	1	
UC7	11407-057-330	C-CERAMIC;CC45T CH 50V 33-J	1	
FC20	11417-344-103	C-CERAMIC;CK45T F 50V 0.01M-Z	1	
IC24,FC5	11417-344-223	C-CERAMIC,HK;CK45T F 50V 0.022M-Z	2	
FC2	11417-344-473	C-CERAMIC,HK;CK45T F 50V 0.047M-Z	1	
IC21	11447-910-103	CONDENSER AXIAL-LEAD;16V EP050 Y100	1	
UC8,9,17,FC7,IC25,39	11448-010-223	CONDENSER AIXAL-LEAD;25V TP 050F220	6	
IC15,13,34,27			4	
IC23,65,2,20			4	
IC55,4,36,37	11449-010-473	CONDENSER AXIAL-LEAD;50V UP	4	
FC6,IC56,62,64			4	
UC10,12,100,101	11449-518-101	CONDENSER AXIAL-LEAD;50V UP050 B100	4	
FC3,IC1,10	11449-518-102	CONDENSER AXIAL-LEAD;50V UP050 B100	3	
IC9	11449-518-331	CONDENSER AXIAL-LEAD;50V UP050 B330	1	
UC102	11449-518-561	CONDENSER AXIAL-LEAD;50V UP050 B560	1	
IC16L,16R	11505-713-183	C-POLYESTER;CQ921T M50V 0.018M-J	2	
UC16	11505-713-223	C-POLYESTER;CQ921T M50V 0.022M-J	1	
IC5	11505-713-333	C-POLYESTER;CQ921T M 50V 0.033M-J	1	
IC12,53	11505-713-683	C-POLYESTER;CQ921T M 50V 0.068M-J	2	
IC7	11505-714-393	C-POLYESTER;CQ921T M50V 0.039M-K	1	
IC11	11505-714-473	C-POLYESTER;CQ921T M 50V 0.047M-K	1	
UC17-1	11608-102-102	C-ELECTROLYTIC;SHL T10V 1000M(10X12)	1	
IC3,22,19,18	11608-102-104	C-ELECTROLYTIC;SMS T 10V 100M(5X11)	4	
IC17	11608-102-224	C-ELECTROLYTIC;SMS T 10V 220M(6.3X1	1	
IC6	11608-103-103	C-ELECTROLYTIC;SMS T 16V 10M(5X11)	1	
IC26	11608-103-104	C-ELECTROLYTIC;SMS T 16V 100M(6.3X11)	1	
IC40,41,14,8	11608-106-102	C-ELECTROLYTIC;SMS T 50V 1M(5X11)	4	
UC18	11608-106-111	C-ELECTROLYTIC;SMS T 50V 0.1M(5X11)	1	
UC15	11608-106-222	C-ELECTROLYTIC;SMS T 50V 2.2M(5X11)	1	
IIC1	12119-101-370	IC IF+MPX;TA8132N	1	
UIC2	12119-203-220	IC-FREQ SYNTHESIZER;LM7000	1	
UIC3	12119-601-160	IC-REGULATOR;TA78L005/MC 78L05AC	1	
IQ11,12,4,5	12159-301-330	TR-DIGITAL;KSR2003/KRA103M TAPE	4	
IQ8,3,6,2,7	12159-301-790	TR DIGITAL;KSR1009/KRC110M TAPE	5	
FD1,2,3,4,ID1	12169-301-290	DIODE-SW;1SS53/1N4148,CT:6PF	5	
ID51	12169-501-005	DIODE;KV 1236	1	
UL6,7,8,9,10,12,13	12429-411-100	COIL-CHOKE;AX 10UH-02(LA02TB100K)	7	
UL1,2,3,4,5,11,14	12429-411-101	COIL-CHOKE;AX 100UH-02(LAL02TB101K)	7	

Location no.	Code no.	Description & Specification	Q'ty	Remark
IT1	12619-030-005	COIL-CAN;AC 450KHZ YEL	1	
TP1,2,3	13124-100-710	TAP-STUD;0.5T SPC1 BT2	3	
IW1	13349-119-050	CONNECTOR-WAFER;53014-0510 2.0MM	1	
UCON1	13349-169-101	CONNECTOR-WAFER;53095-1010	1	
FCF2	14529-301-753	FILTER-CERAMIC;SFE 10.7MS3G-A-TF21	1	
ICF1	14529-304-610	FILTER CERAMIC;AHCM2-450BL	1	
ICF2	14529-601-040	CERAMIC-FILTER;CDA 10.7MG18-A	1	
UX3	14539-501-140	CRYSTAL;HC-49/U 7.2MHZ 12P	1	
ICF3	14539-504-050	CERAMIC-RESONATOR;CSB 456 F18	1	
FW1	16439-0133-00	CONNECTOR WIRE-BSS;5395/51088-02 15	1	
FFP1	A1290-0008	TUNER-FM;FTC2-301HA 75OHM 5V VVC	1	
IQ9	A4050-0168	TR-GENERAL;KSC945C-Y/KTC3198-Y 250M	1	
UQ12,13,FQ1	A4050-0188	TR-GENERAL;KSC1222C-L/KTC3199L-BL 2	3	
IQ1	A4050-0196	TR-GENERAL;KTA1274-Y 1W -400MA 100M	1	
IR53,54,55,56	11018-877-222	R-CARBON;RN 1/8T 2.2K-J	4	
IC63,51	11509-452-120	C-POLYSTYRENE;CQ09 S 50V 470-J	2	Option
ICT51,52,53,54	11829-512-030	C-TRIMMER;TZ03R 20PF	4	"
IL54	12619-047-202	COIL-CAN;AD 510UH 220KHZ BRN	1	"
IL52	12619-047-203	COIL-CAN;AD 110UH 796KHZ RED	1	"
ANT	A1140-0006	COIL-FERRITE ANT;FE-F 240UH/2.5MH P	1	MW/LW
IQ51,52,53,54	A4050-0168	TR-GENERAL;KSC945C-Y/KTC3198-Y 250M	4	"
RR706	11018-277-152	R-CARBON;RD 1/4T 1.5K-J	1	"
ANT	12513-203-357	COIL-ANT ASS'Y ; 235UH AR 8X80	1	AM

14-2. Main section

Location no.	Code no.	Description & Specification	Q'ty	Remark
AR604	11018-277-220	R-CARBON;RD 1/4T 22-J	1	
RR701	11018-277-271	R-CARBON;RD 1/4T 270-J	1	
RR709	11018-277-471	R-CARBON;RD 1/4T 470-J	1	
RR702	11058-277-479	R-FUSIBLE;RF 1/4T 4.7-J	1	⚠
AC611,661	11417-344-103	C-CERAMIC;CK45T F 50V 0.01M-Z	2	
QC14L,14R,9R	11447-619-122	CONDENSER AXIAL-LEAD;16V EP050 X120	3	
QC13R	11447-619-682	CONDENSER AXIAL-LEAD;16V EP050 X680	1	
QC11L	11447-919-822	CONDENSER AXIAL-LEAD;16V EP050 Y820	1	
QC23,508,21,509	11448-010-223	CONDENSER AIXAL-LEAD;25V TP 050F220	4	
RC800	11449-010-473	CONDENSER AXIAL-LEAD;50V UP F47000-	1	
QC5L,QC5R	11449-117-470	CONDENSER AXIAL-LEAD;50V UP 050 SL4	2	
AC603,653,EC2	11449-518-102	CONDENSER AXIAL-LEAD;50V UP050 B100	3	
QC405	11449-518-151	CONDENSER AXIAL-LEAD;50V UP050 B150	1	
QC406	11449-518-471	CONDENSER AXIAL-LEAD;50V UP050 B470	1	
QC16L,16R	11449-518-561	CONDENSER AXIAL-LEAD;50V UP050 B560	2	
QC4L,4R,QC1,2	11505-713-102	C-POLYESTER;CQ921T M 50V 0.001M-J	4	
QC10L,10R	11505-713-333	C-POLYESTER;CQ921T M 50V 0.033M-J	2	
QC12L,12R	11505-713-562	C-POLYESTER;CQ921T M50V 0.0056M-J	2	
QC7L,7R	11505-714-103	C-POLYESTER;CQ921T M 50V 0.01M-K	2	
QC8L,8R,9L	11505-714-122	C-POLYESTER;CQ921T M 50V 0.0012M-K	3	
AC607,AC657	11505-714-154	C-POLYESTER;TAPING 0.15MF-K 50V	2	
SC2,4	11505-714-273	C-POLYESTER;CQ921T M50V 0.027M-K	2	
QC13L	11505-714-682	C-POLYESTER;CQ921T M 50V 0.0068M-K	1	
QC11R	11505-714-822	C-POLYESTER;CQ921T M 50V 0.0082M-K	1	
AC656,RC709,RC710,	11608-102-104	C-ELECTROLYTIC;SMS T 10V 100M(5X11)	4	
AC606,605,655,707			3	
QC507,20	11608-102-224	C-ELECTROLYTIC;SMS T 10V 220M(6.3X11)	2	
AC613,604	11608-102-333	C-ELECTROLYTIC;SMS T 10V 33M(5X11)	2	
QC505	11608-102-471	C-ELECTROLYTIC;SMS T 10V 470M(8X11.5)	1	
QC24	11608-102-473	C-ELECTROLYTIC;SMS T 10V 47M(5X11)	1	
QC506,556,SC3	11608-103-103	C-ELECTROLYTIC;SMS T 16V 10M(5X11)	3	
RC711,QC504,SC1	11608-103-104	C-ELECTROLYTIC;SMS T 16V 100M(6.3X11)	3	
RC720	11608-103-221	C-ELECTROLYTIC;SMS T 16V 220M(8X11.5)	1	
RC708	11608-103-471	C-ELECTROLYTIC;SMS T 16V 470M(10X12.5)	1	
AC609	11608-104-331	Q-ELECTROLYTIC;SMS T 25V 330M(10X12.5)	1	
AC610	11608-104-471	C-ELECTROLYTIC;SHL T 25V 470M(10X12.5)	1	
QC502,503,AC651,	11608-106-102	C-ELECTROLYTIC;SMS T 50V 1M(5X11)	5	
QC15L,15R, QC553			3	
5501,551,552,AC601			4	
EC1			1	
QC3L,3R	11608-106-471	C-ELECTROLYTIC;SMS T 50V 0.47M(5X11)	2	
AC602,652	11608-156-472	C-ELECTROLYTIC;SRA T 50V 4.7M(5X7)	2	
AC608,658	11609-401-340	C-ELECTROLYTIC;SMS 10V 2200M(12.5X20)	2	
AIC601	12119-101-290	IC-POWER AMP;TA8207K	1	⚠
QIC1	12119-102-830	IC-MULTIPLEXER 4CHX2;TC4052BP	1	
QIC501,QIC2	12119-401-630	IC-DUAL OPAMP ;MC4558S/NJM4558S	2	
AQ603	12159-301-330	TR-DIGITAL;KSR2003/KRA103M TAPE	1	
AQ602,SQ1	12159-301-790	TR DIGITAL;KSR1009/KRC110M TAPE	2	

Location no.	Code no.	Description & Specification	Q'ty	Remark
RD713,712	12169-101-140	DIODE GERMANIUM;1K 188 FM-1TP	2	
RD720	12169-201-090	DIODE-RECTIFIER;1N 4002,TAPE	1	
RD705,707,709,ED101	12169-301-290	DIODE-SW;1SS53/1N4148,CT:6PF	4	
RD710,711,QD501			3	
QZD1	12169-403-330	DIODE-ZENER;UZP5.1B/RD5.1EB1	1	⚠
RZD703	12169-403-600	DIODE-ZENOR;UZP-8 .2B	1	⚠
RZD701	12169-404-110	DIODE-ZN;RD5.6FB/UZP-5.6B	1	⚠
MIC	13339-101-502	JACK-HEADPHONE;SHQ9085-01-142(GRN)	1	
QW1	13349-169-141	CONNECTOR-WAFER;53095-1410	1	
RW1	13349-512-562	CONNECTOR-WAFER;5267-04A 4P STICK	1	
B/CUT	13519-930-360	SWITCH-SLIDE;00230673 2C-3P	1	
RQ703	15684-505-820	HEAT-SINK(CD);AL 1.0T SCM-7000	1	
PCB	16024-0363-00	P.C.B-MAIN;RCD-1650 W330 L247	1	
QC6L,6R	A1102-0164	C-FILM;CF 922 P 63V T 104-J PM/ECQ-	2	
RQ703	A4050-0037	TR-GENERAL;KTC4369-Y 15W 3A 100MHZ	1	⚠
AQ601,651	A4050-0097	TR-GENERAL;KTC3203-Y 600MW 800MA 12	2	
RQ702,SQ3,4	A4050-0168	TR-GENERAL;KSC945C-Y/KTC3198-Y 250M	3	
RQ701	A4050-0196	TR-GENERAL;KTA1274-Y 1W -400MA 100M	1	
RQ704	A4050-0197	TR-GENERAL;KTC3227-Y 1W 400MA 100MH	1	
RIC701	B4008-1197	IC-VOLT REGU;BA3940 SIP 12P	1	⚠
QIC502	B4012-0415	IC-LINEAR;TC9154AP DIP ELEC VR	1	
AW1	B6010-1488	CONNECTOR-WAFER;S4B-JL-F-E BLU JST	1	
	19129-0370-01	ASSY-MAIN PCB ; RCD1650		

14-3. EQ PCB section

Location no.	Code no.	Description & Specification	Q'ty	Remark
CSV802	11249-102-103	VR-SEMI TAPE-V;EVN-DCA A03B23(2K)	1	
KC401,451	11447-619-182	CONDENSER AXIAL-LEAD;16V EP050 X180	2	
JC313	11447-619-332	CONDENSER AXIAL-LEAD;16V EP050 X330	1	
JC315	11447-910-103	CONDENSER AXIAL-LEAD;16V EP050 Y100	1	
JC208,258	11448-010-223	CONDENSER AIXAL-LEAD;25V TP 050F220	2	
CC803,JC317	11449-518-101	CONDENSER AXIAL-LEAD;50V UP050 B100	2	
JC401,451,402,452			4	
UC901,951,JC202,252	11449-518-102	CONDENSER AXIAL-LEAD;50V UP050 B100	4	
JC301,KC31R			2	
JC307,357	11449-518-331	CONDENSER AXIAL-LEAD;50V UP050 B330	2	
KC403	11505-713-152	C-POLYESTER;M,T 50V152J	1	
KC404	11505-713-562	C-POLYESTER;CQ921T M50V 0.0056M-J	1	
JC303,353,204,254	11505-714-393	C-POLYESTER;CQ921T M50V 0.039M-K	4	
JC302,352,203,253	11608-102-104	C-ELECTROLYTIC;SMS T 10V 100M(5X11)	4	
JC207	11608-102-471	C-ELECTROLYTIC;SMS T 10V 470M(8X11.	1	
KC402,JC312,308	11608-102-473	C-ELECTROLYTIC;SMS T 10V 47M(5X11)	3	
JC209,KC405	11608-103-103	C-ELECTROLYTIC;SMS T 16V 10M(5X11)	2	
JC316,IC35	11608-103-104	C-ELECTROLYTIC;SMS T 16V 100M(6.3X1	2	
CC802	11608-103-221	C-ELECTROLYTIC;SMS T 16V 220M(8X11.	1	
JC314	11608-103-223	C-ELECTROLYTIC;SMS T 16V 22M(5X11)	1	
KC407,JC311	11608-103-473	C-ELECTROLYTIC;SMS T 16V 47M(5X11)	2	
CC801,JC306,356	11608-106-102	C-ELECTROLYTIC;SMS T 50V 1M(5X11)	3	
JC309,205,255			3	
JC305,355,201,251	11608-106-471	C-ELECTROLYTIC;SMS T 50V 0.47M(5X11	4	
JC304,354	11608-106-472	C-ELECTROLYTIC;SMS T 50V 4.7M(5X11)	2	
JIC201	12119-201-990	IC-PRE-AMP;KA22211	1	
CQ803	12139-201-100	TRANSISTOR;KSA928A-Y/KTA1273-Y TAPE	1	
JQ205	12159-301-330	TR-DIGITAL;KSR2003/KRA103M TAPE	1	
JQ202,252	12159-301-790	TR DIGITAL;KSR1009/KRC110M TAPE	2	
CQ807,KQ404,403	12159-301-800	TR-DIGITAL;KSR1007/KRC108M TAPE	3	
CD802,804,801	12169-201-090	DIODE-RECTIFIER;1N 4002,TAPE	3	
CD805,JD205,203,204,	12169-301-290	DIODE-SW;1SS53/1N4148,CT:6PF	5	
KD21,JD202,KD402,			3	
CD806,KD201,401,			3	
EJW26,CD803,JD255			3	
KT401	12619-012-811	COIL-SEVEN CAN;1R65HH I-BIAS	1	
KCON1	13072-015-130	CONNECTOR-WIRE/B,S;51004-05/5295-05	1	
CW1	13349-512-568	CONNECTOR-WAFER;5267-07A 7P STICK	1	
KW1,KW2	13349-527-502	CONNECTOR-WAFER;5267-03A 3P STICK	2	
CQ802,JQ207,CQ801,	A4050-0156	TR-GENERAL;KSA733C-Y/KTA1266-Y 250M	4	
CQ806			1	
EQ1,CQ805,JQ206	A4050-0168	TR-GENERAL;KSC945C-Y/KTC3198-Y 250M	3	
KQ401	A4050-0189	TR-GENERAL;KSC900C-L/KTC3198L-BL 25	1	
JQ208,KQ405,402,	A4050-0196	TR-GENERAL;KTA1274-Y 1W -400MA 100M	4	
CQ804			1	
SW2	B3000-0044	SW-PUSH;2C2P 12.5MM ML ASH R2321369	1	
KIC1	B4012-0416	IC-LINEAR;TA2068N DIP PRE AMP	1	
KCON3	B6010-1506	CONNECTOR-WAFER;TKC-A14P-J1 WHT	1	

14-4. Front section

Location no.	Code no.	Description & Specification	Q'ty	Remark
UR25	11018-277-152	R-CARBON;RD 1/4T 1.5K-J	1	
UC31	11407-018-331	C-CERAMIC;CC45T SL 50V 330-K	1	
UC23,24	11407-057-120	C-CERAMIC;CC45T CH50 12-J	2	
UC21,22	11407-057-200	C-CERAMIC;CC45T CH 50V 20-J	2	
UC41	11447-910-103	CONDENSER AXIAL-LEAD;16V EP050 Y100	1	
UC26,30,33	11448-010-223	CONDENSER AIXAL-LEAD;25V TP 050F220	3	
UC32,40	11449-518-101	CONDENSER AXIAL-LEAD;50V UP050 B100	2	
UC27	11608-102-331	C-ELECTROLYTIC;SMS T 10V 330M(8X11.5)	1	
UC28	11608-153-100	C-ELECTROLYTIC;SRA T 16V 10M(4X7)	1	
UC29	11608-156-108	C-ELECTROLYTIC;SRA T 50V 0.1M(4X7)	1	
UQ5	12159-301-780	TR DIGITAL;KSR1003/KRC103M TAPE	1	
UD10,15,16,17,18,19	12169-301-290	DIODE-SW;1SS53/1N4148,CT:6PF	6	
UD20,22,25,26,27,28			6	
UD24,30,31,21			4	
UD23	12309-115-330	LED;KLR124	1	
UL15,16,17,18,19,22,	12429-411-100	COIL-CHOKE;AX 10UH-02(LA02TB100K)	6	
UL23,24,26,27,28,30			6	
UL50,51			2	
UL21	12602-214-518	COIL-SPRING;SBT-0260TF(SBT-0460TF)	1	
	13324-0195-00	HOLDER-LED(A);RCD-1650 BLK ABS	1	
UW4	13349-167-040	CONNECTOR WAFER;3022-04B K/MOLEX	1	
UW5	13349-168-101	CONNECTOR-WAFER;2MM 52084-1010 10P	1	
UW1	13349-168-141	CONNECTOR-WAFER;2MM 52084-1410 14P	1	
UW6	13349-512-561	CONNECTOR-WAFER;5267-02A 2P TYPE	1	
US14	13529-203-930	SW-PUSH;SPEA122S C011	1	
US1,2,3,4,5,6,7,8	13559-901-100	SWITCH-TACT;SKHV10910A	8	
US9,10,11,12,13			5	
FB2,3	14049-033-420	FERRITE BEAD;INDVCTOR 3857S TAPE	2	
UX2	14539-502-350	X-TAL;32.768KHZ	1	
UX1	A1280-0072	CRYSTAL;4.194304MHZ HC-49/U-A +-0.0	1	
UQ1,2,3,4	A4050-0156	TR-GENERAL;KSA733C-Y/KTA1266-Y 250M	4	
UQ6	A4050-0168	TR-GENERAL;KSC945C-Y/KTC3198-Y 250M	1	
ULCD1	A4155-0074	LCD;LE-06127A RCD1650	1	
UIC1	B4002-0735	IC-CPU;UPD75316GF-571-3B9 RCD1650 Q	1	
UW2	B6010-1505	CONNECTOR-WAFER;TKC-A14X-B1 WHT	1	
FJW13	A6040-0011	WIRE-SO COPPER;PI0.6 SN T 52MM	1	
	19129-0372-06	ASSY-FRONT PCB ; RCD1650		

14-5. Power section

Location no.	Code no.	Description & Specification	Q'ty	Remark
RC1,2,3,4	11417-344-223	C-CERAMIC,HK;CK45T F 50V 0.022M-Z	4	
RC715	11469-501-070	C-CERAMIC,AC;DE 7100FZ 472P VA1-KC	1	
RC5	11609-154-332	C-ELECTROLYTIC;SMS 25V 3300M(16X31.	1	⚠
RD1,2,3,4	12169-201-140	DIODE;IN5392 TAPING/R	4	⚠
RCW2	13078-474-110	CONNECTOR-WIRE/B,S;5264-04/5395-04	1	
RCW1	13349-527-502	CONNECTOR-WAFER;5267-03A 3P STICK	1	
PCB	16024-0364-00	P.C.B-POWER;RCD-1650 W247 L197	0.25	
PJW1	A6040-0011	WIRE-SO COPPER;PI0.6 SN T 52MM	1	
RT701	A1199-0145	TRANS-POWER;EI57X32 230/240V 50HZ	1	Option ⚠
RT701	A1199-0144	TRANS-POWER ; EI57X32 115/32 115/230V	1	" ⚠
AC SOCKET	13354-501-320	SOCKET 2P SW(CP) ; HSC1466-01-0101	1	" ⚠
AC SOCKET	B3043-0005	SOCKET POWER AC ; HSC1563 EP2	1	" ⚠

14-6. LED PCB section

Location no.	Code no.	Description & Specification	Q'ty	Remark
UC11	11448-010-223	CONDENSER AIXAL-LEAD;25V TP 050F220	1	
UC40	11608-102-473	C-ELECTROLYTIC;SMS T 10V 47M(5X11)	1	
UL1	12429-411-100	COIL-CHOKE;AX 10UH-02(LA02TB100K)	1	
LED	13394-0007-00	RUBBER-CAP;RCD-1650 CILICONE GRN	4	
	14074-0252-00	WINDOW-FILTER(A);RCD-1650 T0.5 MLK	1	
UCW10	A6010-1503	CONNECTOR-HOUSING;42140-2004 WHT K/	1	
URE1	B1294-0042	MODULE-REMOCON;RPM-638CBR-L 38KHZ 9	1	
UD101,102,103,104	B4158-0043	LAMP-PILOT;9V75MA T-3 DV9V 75MA TRP	4	

14-7. Headphone PCB section

Location no.	Code no.	Description & Specification	Q'ty	Remark
AR5L,5R	11018-277-151	R-CARBON;RD 1/4T 150-J	2	
AJ1	13339-101-502	JACK-HEADPHONE;SHQ9085-01-142(GRN)	1	
AW6	13349-512-565	CONNECTOR-WAFER;5267-06A 6P STICK	1	

14-8. CD section

Location no.	Code no.	Description & Specification	Q'ty	Remark
NR60	11018-277-102	R-CARBON;RD 1/4T 1K-J	1	⚠
NR61	11058-377-011	R-FUSIBLE;RF 1/2T 1-J	1	⚠
NVR2,3,4	11249-102-044	VR-SEMI TAPE-H;EVN CYA/EVN-DJAA30 B	3	
NVR1	11249-102-064	VR-SEMI TAPE-H;EVN CYA/EVN-DJAA30 B	1	
NC72,84	11407-018-151	C-CERAMIC;CC45T SL 50V 150-K	2	
NC2	11407-052-409	C-CERAMIC;CC45T CH 50V 4-C	1	
NC7	11407-057-809	C-CERAMIC;CC45T CH50 8-J	1	
NC82	11447-619-122	CONDENSER AXIAL-LEAD;16V EP050 X120	1	
NC21,53	11447-619-152	CONDENSER AXIAL-LEAD;16V EP050 X150	2	
NC11	11447-619-222	CONDENSER AXIAL-LEAD;16V EP050 X220	1	
NC1,13	11447-619-682	CONDENSER AXIAL-LEAD;16V EP050 X680	2	
NC14,30,31,74,79,25	11447-910-103	CONDENSER AXIAL-LEAD;16V EP050 Y100	6	
NC8,9,28	11449-010-104	CONDENSER AXIAL-LEAD;50V UP F100000	3	
NC52,77	11449-010-473	CONDENSER AXIAL-LEAD;50V UP F47000-	2	
NC62,63	11449-117-180	CONDENSER AXIAL-LEAD;50V UP050 SL18	2	
NC50,51	11449-117-330	CONDENSER AXIAL-LEAD;50V UP 050 SL3	2	
NC5,10,73,80	11449-518-102	CONDENSER AXIAL-LEAD;50V UP050 B100	4	
NC17	11449-518-331	CONDENSER AXIAL-LEAD;50V UP050 B330	1	
NC85,86	11449-518-561	CONDENSER AXIAL-LEAD;50V UP050 B560	2	
NC71	11505-714-122	C-POLYESTER;CQ921T M 50V 0.0012M-K	1	
NC19	11505-714-183	C-POLYESTER;CQ921T M 50V 0.018M-K	1	
NC12,24,32	11505-714-333	C-POLYESTER;CQ921T M 50V 0.033M-K	3	
NC15	11505-714-683	C-POLYESTER;CQ921T M 50V 0.068M-K	1	
NC3	11608-102-104	C-ELECTROLYTIC;SMS T 10V 100M(5X11)	1	
NC4,6,64,65,88	11608-102-224	C-ELECTROLYTIC;SMS T 10V 220M(6.3X11)	5	
NC76			1	
NC55	11608-102-471	C-ELECTROLYTIC;SMS T 10V 470M(8X11.5)	1	
NC78	11608-102-473	C-ELECTROLYTIC;SMS T 10V 47M(5X11)	1	
NC18	11608-103-103	C-ELECTROLYTIC;SMS T 16V 10M(5X11)	1	
NC75,81	11608-103-333	C-ELECTROLYTIC;SMS T 16V 33M(5X11)	2	
NC60	11608-103-471	C-ELECTROLYTIC;SMS T 16V 470M(10X12.5)	1	
NC27	11608-106-471	C-ELECTROLYTIC;SMS T 50V 0.47M(5X11)	1	
NC22,70,83	11608-106-472	C-ELECTROLYTIC;SMS T 50V 4.7M(5X11)	3	
NC16,26	11608-206-478	C-ELECTROLYTIC;NP SMS T 50V 0.47M(5x11)	2	
NQ8	12139-201-100	TRANSISTOR;KSA928A-Y/KTA1273-Y TAPE	1	⚠
NQ5	12159-301-330	TR-DIGITAL;KSR2003/KRA103M TAPE	1	
NQ2,3,4	12159-301-780	TR DIGITAL;KSR1003/KRC103M TAPE	3	
ND2,3,5,6	12169-301-400	DIODE-SWITCH;1N4148M ROHM(SMALL)	4	
NZD1	12169-404-800	DIODE ZENER;500MW UZ-6.2BSB TAPING	1	
NL50	12429-070-350	COIL-CHOKE;AX 1.2UH-03(LAL03TB1R2M)	1	
NL100,101	12429-411-100	COIL-CHOKE;AX 10UH-02(LA02TB100K)	2	
NL102	14049-033-420	FERRITE BEAD;INDVCTOR 3857S TAPE	1	
PCB	16024-0382-00	P.C.B-CD MAIN;FR1 T1.6 W300 L330 CD	0.33	
NC23,29	A1102-0164	C-FILM;CF 922 P 63V T 104-J	2	
NIC9270	A4012-0089	IC-LINEAR;KA9270D SOP AUDIO FILTER	1	
NIC9258	A4012-0169	IC-LINEAR;KA9258 SOP CD-4CH DRIVER	1	⚠
	19129-172-30	ASSY-SUB-PCB ; RCD-1650 CD PCB ASSY		

Location no.	Code no.	Description & Specification	Q'ty	Remark
NIC9220	A4012-0290	IN-LINEAR L KA9220 QFP RE+SSP	1	
NIC9282	A4012-0291	IN-LINEAR ; KS9282 QFP DSP+DAC+DPLL	1	
NQ6,7	Z4050-0168	TR-GENERAL ; KSC945C-Y/KT3198-Y 250M	2	
NQ1	A4050-0186	TR-GENERAL ; KTA1271-Y 625MW-800MA	1	
NQ9	A4050-0197	TR-GENERAL ; KTC3227-Y 1W 400MA 100MHz	1	
	A6010-1683	CONNECTOR-WAFER ;90059-0013 BLK	2	
	A6010-1684	CONNECTOR-WAFER ; 70221-0243 BLK	1	
	A6032-0076	WIRE-PLATE ; 21/100 BNCD-P=1.25-K-21	1	
	B6010-0972	CONNECTOR-WAFER ; 52045-2110 WHT	1	

15. List of Abbreviation

ANT	: Antennas	Kg	: Killogram
Addr	: Address	L	: Left, Low
ADJ.	: Adjustment	LED	: Light Emiting Diode
AGC	: Automatic Gain Control	LPF	: Low Pass Filter
AMP	: Amplifier		
ASSY	: Assembly	Max.	: Maximum
APC	: Auto power control	MHz	: Megahertz
		Min.	: Minimum
BAT	: Battery	MOD	: Modulation
BTN	: Button	MPX	: Multiplex
BAL	: Balance	MGSW	: Magazine Switch
BLK	: Black	MGLS	: Magazine Limit Switch
BLU	: Blue	MGLK	: Magazine Limit Switch
BPF	: Band Pass Filter		
BRKT	: Bracket	NF of NFB	: Negative Feedback
C	: Chip	OP AMP	: Operational Amplifier
CF	: Ceramic Filter	ORG	: Orange
ch	: channel	OSC	: Oscillator
cm	: centimeter		
COM	: Common	PB	: Playback
CDPS	: Disc Photo Sensor	PCB	: Printed Circuit Board
		PLL	: Phase Lock Loop
D	: Diode	P/T	: Power Transformer
D	: Depth		
D/A Convertor	: Digital/Analog Convertor	R	: Right
dB	: decibel	RAM	: Random Access Memory
DC	: Direct Current	REC	: Record
DEC	: Decoder	REG	: Regulator
DET	: Decector	REW	: Rewind
DEV	: Deviation	RF	: Radio Frequency
DSP	: Digital Signal Processor	ROM	: Read Only Memory
DTS	: Digiatl Tuning System	R/P	: Record/Play
DCMT	: Disc Motor	SP	: Spring
DSCKC	: Disc Lock Sw	sec.	: Second
		SSG	: Standard Signal Generator
EA	: Each	SSP	: Servo Signal Processor
ELPS	: Elevator Photo Sensor	ST	: Stereo
ELLM	: Elevator Limit Sw	ST/EJT	: Stop/Eject
ELMT	: Elevator Motor	SW	: Switch, Short wave
EQ	: Equalizer	TP	: Test Point
EJ	: Eject	TR	: Transistor
		TRANS	: Transformet
FF	: Fast forward		
F/F	: Flip Flop	V	: Volt
Fig	: Figure	VIO	: Violet
FREQ.	: Frequency	VCO	: Voltage Controlled Oscillate
		VOL	: Volume
GND	: Ground	Vpp	: Voltage peat or peak
GRN	: Green	VR	: Volume
GRY	: Gray	Vref	: Reference Voltage
		V/SEL	: Voltage selector
H	: Height, High	VTVM	: Vacuum Tube Volt Meter
Hz	: Hertz	VVC	: Voltage Variabel Capacitance
IB	: Instruction Booklet	W	: Watt or Weight
IC	: Integrated Circuit	WHT	: White
I/O	: Input/Output	X or X-tal	: Crystal
KHz	: Killohertz	YEL	: Yellow